

te technical note tech

Weather and Radar Processor (WARP) Operational Capabilities Test (OCT) Procedures

William Benner
Christopher Malitsky
Tri Nguyen

June 1996

DOT/FAA/CT-TN95/51

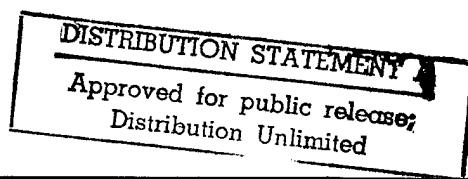
Document is on file at the William J. Hughes Technical Center
Library, Atlantic City International Airport, NJ 08405

19960715 000



U.S. Department of Transportation
Federal Aviation Administration

William J. Hughes Technical Center
Atlantic City International Airport, NJ 08405



DTIC QUALITY INSPECTED 1

NOTICE

This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for the contents or use thereof.

The United States Government does not endorse products or manufacturers. Trade or manufacturers' names appear herein solely because they are considered essential to the objective of this report.

1. Report No. DOT/FAA/CT-TN95/51	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Weather and Radar Processor (WARP) Operational Capabilities Test (OCT) Procedures		5. Report Date June 1996	
		6. Performing Organization Code	
7. Author(s) William Benner, Christopher Malitsky, Tri Nguyen; William Hall, Matthew Printy (UAL)		8. Performing Organization Report No. DOT/FAA/CT-TN95/51	
9. Performing Organization Name and Address U.S. Department of Transportation Federal Aviation Administration William J. Hughes Technical Center Atlantic City International Airport, NJ 08405		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No.	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Federal Aviation Administration William J. Hughes Technical Center Atlantic City International Airport, NJ 08405		13. Type of Report and Period Covered Technical Note	
		14. Sponsoring Agency Code	
15. Supplementary Notes			
16. Abstract The WARP OCT Procedures identify the test steps which will be used to determine if a vendor's proposed system will meet WARP Stage 0 requirements. The procedures also contain an overview of the OCT test strategy, requirements, conduct, and evaluation.			
17. Key Words Weather and Radar Processor (WARP) Operational Radar Satellite		18. Distribution Statement Document is on file at the William J. Hughes Technical Center Library, Atlantic City Int'l Airport, NJ 08405	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 105	22. Price

Table of Contents

EXECUTIVE SUMMARY	v
1. INTRODUCTION	1
1.1 OCT Schedule/Location	1
1.2 Personnel Requirements	1
1.3 Hardware/Software Support	1
1.4 Safety Considerations	1
1.5 Verification Requirements Traceability Matrix (VRTM)	2
2. REFERENCES	2
3. WARP OCT TESTS	2
3.1 Test Number 1 - Radar	2
3.2 Test Number 2 - Satellite	5
3.3 Test Number 3 - Lightning	7
3.4 Test Number 4 - Received Alphanumeric Products	9
3.5 Test Number 5 - NWS Graphic Products	11
3.6 Test Number 6 - Watch, Warning, Advisory Products	13
3.7 Test Number 7 - Plot Products	15
3.8 Test Number 8 - Thermodynamic Products	17
3.9 Test Number 9 - Contour Analysis Products	20
3.10 Test Number 10 - Streamline Analysis Products	22
3.11 Test Number 11 - Vertical Cross-Section Analysis Products	24
3.12 Test Number 12 - Alarm/Alert	26
3.13 Test Number 13 - WARP Monitoring And Control	28
3.14 Test Number 14 - Computer-Human-Interface (CHI)	30
3.15 Test Number 15 - WARP Retention	33
3.16 Test Number 16 - WARP Archiving	35
3.17 Test Number 17 - WARP Performance Processing	37
3.18 Test Number 18 - WARP Adaptive Operation	38
3.19 Test Number 19 - WARP System Characteristics	40
4. ACRONYMS AND ABBREVIATIONS	42
APPENDIX	

EXECUTIVE SUMMARY

The Weather and Radar Processor (WARP) Operational Capabilities Test (OCT) Procedures identify the generic test steps which will be used to determine if a vendor's proposed system will meet WARP Stage 0 requirements. These procedures also contain an overview of the OCT test strategy, requirements, conduct, and evaluation. From these generic test steps, the vendor will develop detailed procedures. Upon FAA approval, the vendor generated procedures will be used during OCT at the vendor's site.

1. INTRODUCTION.

This document defines the generic procedures of the Weather and Radar Processor (WARP) Operational Capabilities Test (OCT). Each offeror chosen to participate in the OCT must develop detailed OCT procedures from these generic procedures. The detailed procedures will be used during the OCT to verify the applicable WARP system specification requirements listed in the WARP Verification Requirements Matrix in the WARP OCT Plan, Request for Proposal (RFP) section L, attachment L-1.

1.1 OCT SCHEDULE/LOCATION.

The WARP OCT will be held at the offeror's site in accordance with the schedule outlined in section L of the WARP RFP.

1.2 PERSONNEL REQUIREMENTS.

The offeror will provide the necessary personnel as described in the OCT plan to operate their proposed WARP system in accordance with the OCT generic procedures and the Federal Aviation Administration (FAA) approved detailed OCT procedures received from the offeror.

1.3 HARDWARE/SOFTWARE SUPPORT.

The offeror shall provide the necessary equipment (computer(s), terminal(s), modem(s), printer(s), etc.) to satisfactorily conduct all phases of the WARP OCT. The offeror's system used in the OCT must be in the configuration which the offeror has described in the technical proposal response to this solicitation.

Under this section in their detailed OCT procedures, the offeror shall provide a description of the system/subsystems to be tested and include a description of the major functions of each subsystem presented. The offeror shall also provide a block diagram along with a functional description of each interface connected to their system. Interface descriptions shall include any facility interfaces, data interfaces, operator interfaces, and any interfaces required to validate WARP Stage 0 requirements during the OCT.

1.4 SAFETY CONSIDERATIONS.

N/A

1.5 VERIFICATION REQUIREMENTS TRACEABILITY MATRIX (VRTM).

Those WARP System Specification requirements that are subject to OCT verification are presented in the VRTM of the WARP OCT Plan, RFP Section L, attachment L-1. The VRTM identifies those requirements that are modified or replaced by requirements presented by addendum 1.

2. REFERENCES.

The following FAA documents are the basis for the OCT generic procedures defined herein:

- a. FAA-E-2898 Weather and Radar Processor System Specification.
- b. DTFA01-94-TBD-TBD Weather and Radar Processor System Request for Proposal.

3. WARP OCT TESTS.

This section provides the detailed descriptions and procedures for each of the 19 functional and performance areas indicated in the WARP OCT Plan. The offeror will power up, initialize, and bring their proposed system to an operational state at the start of the OCT. The system shall remain in the operational state throughout the entire 3 day period allocated for the OCT, including the overnight time period of each test day. The OCT test procedures for the 19 tests are defined in appendix A.

3.1 TEST NUMBER 1 - RADAR.

3.1.1 Radar Functional Capabilities.

The radar products test of the WARP OCT verifies the capability of the proposed WARP system to meet the functional requirements for radar products as specified in sections 3.2.1.1.1.1 and 3.2.1.1.2.1.1.1 of the WARP specification.

3.1.1.1 Description.

The radar products test will require selection for generation/display of a set of WSR-88D radar products on the

vendor's proposed WARP system. The FAA's Technical Evaluation Team (TET) will identify at the OCT the set of products to be displayed from FAA determined sites. Selected radar product outputs will be verified against a baseline set of hard copy outputs of WSR-88D products obtained by the FAA from approved government sources for the same area of coverage and date/time group.

3.1.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 1:

3.2.1.1.1.1.1.1	ACF area
3.2.1.1.1.1.1.1.1	Area of coverage
3.2.1.1.1.1.1.1.2	National mosaic
3.2.1.1.2.1.1.1.0	Point products
3.2.1.1.2.1.1.1.1	ACF mosaics
3.2.1.1.2.1.1.1.1.1	Mosaic update
3.2.1.1.2.1.1.1.1.2	Multiple coverage
3.2.1.1.2.1.1.1.1.4	Clutter suppression
3.2.1.1.2.1.1.1.1.5	Resolution
3.2.1.1.2.1.1.1.2	National mosaic
3.2.1.1.2.1.1.1.3	Display characteristics
(b,d,e,g,h,i,k,l)	
3.2.1.1.4.1.1.1	Product reception log
3.2.1.1.4.1.2(c)	Log requests
Appendix C, Table 30-1	Product Acquisition Performance Requirement

3.1.2 Detailed Test Operations.

3.1.2.1 Test Setup.

The offeror's proposed system shall be in the operational state as described in section 3 and where the system is receiving WSR-88D data, routinely generating/displaying radar products in response to user requests, and maintaining a database of generated products. The proposed system shall be capable of generating/displaying high resolution radar mosaic products for the Area Control Facility (ACF) area of coverage as specified in appendix A of the OCT Test Plan. The TET will have to coordinate the collection of baselined radar products that will be used to validate the products obtained from the offeror's system.

3.1.2.2 Test Conduct.

The radar functional capabilities test will be conducted in accordance with the generic OCT procedures test number 1 listed in appendix A and the associated detailed test procedures developed by the offeror.

3.1.2.3 Test Termination/Restart.

If the radar functional capabilities test has to be terminated, the FAA will collect paper hard copies of all logs generated by the proposed system, all product outputs, all OCT certification sheets associated with the test, and the official redlined test procedure as executed. The FAA Technical Evaluation Team leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.1.3 Test Data Reduction And Analysis.

The requirements associated with the radar functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration that the proposed system has the capability to acquire and display radar products. Applicable product display requirements will be verified through visual analysis and by comparing products produced during the demonstration with radar products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is consistent with product information and/or data obtained by the FAA. The TET will check to make sure that individual NEXRAD Information Dissemination Service (NIDS) products are displayed unaltered. This data will be analyzed off-line to verify the requirements listed in section 3.1.1.2 above. The received products log will be analyzed to verify the timely receipt of all available radar products over the NIDS interface.

3.1.3.1 Recording and Reduction Requirements.

The TET will collect from the offeror color hard copies of displayed radar products and a hard copy output of the product reception log. Corresponding products used for product validation will be collected by the FAA from approved sources. To facilitate analysis, all product hard copies shall be time and date stamped.

3.1.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.2 TEST NUMBER 2 - SATELLITE.

3.2.1 Satellite Functional Capabilities Test.

The satellite products demonstration of the WARP OCT verifies the capability of the offeror's system to meet the functional requirements for the acquisition and generation/display of satellite products as specified in sections 3.2.1.1.1.1.2 and 3.2.1.1.2.1.1.2 of the WARP specification.

3.2.1.1 Description.

The satellite products test will verify the acquisition, generation, and display capabilities of the system with the selection of several satellite products for display on the offeror's system. This test will also verify the offeror's capability of creating, storing, and modifying the display of satellite products with the use of enhancement curves. The identification of the products to be displayed will be provided by the TET to the offeror at the time of the OCT. Hard copies of selected satellite products will be verified against the baseline set of hard copy outputs of satellite products of the same date and time stamp obtained by the FAA from approved sources.

3.2.1.2 Test Objectives.

The following WARP specification requirements will be verified by OCT test 2:

3.2.1.1.1.1.2	Satellite products
3.2.1.1.2.1.1.2.1(a)	North American (NA) coverage
3.2.1.1.2.1.1.2.1(b)	Intermediate Area (IA) coverage
3.2.1.1.2.1.1.2.2(a)	Radiometric resolution
3.2.1.1.2.1.1.2.2(b)	Projections
3.2.1.1.2.1.1.2.2(c)	Product display
3.2.1.1.2.1.1.2.2(d)	Image enhancement
3.2.1.1.2.1.1.2.2(e)	User-specified enhancement
3.2.1.1.2.1.1.2.2(f)	Enhancement curve storage and retrieval
3.2.1.1.2.1.1.2.2(g)	Display updates

3.2.1.1.4.1.1.1	Product reception log
3.2.1.1.4.1.2(c)	Log requests
Appendix C, Table 30-1	Product Acquisition Performance Requirement

3.2.2 Detailed Test Operations.

3.2.2.1 Test Setup.

The offeror's system shall be in operational state as described in section 3 and where the system is receiving satellite products on a routine basis, capable of routinely generating/displaying satellite products in response to user requests, and is retaining all received satellite products. The offeror's proposed system shall be capable of displaying high resolution satellite image products for the Intermediate Area (IA) coverage as specified in appendix A of the OCT Test Plan. The TET will have to coordinate the collection of the set of product outputs that will be used to validate the products of the offeror's system from FAA-approved sources.

3.2.2.2 Test Conduct.

The satellite functional capabilities test will be conducted in accordance with the generic procedures for test number 2 listed in appendix A and the associated detailed procedures developed by the offeror.

3.2.2.3 Test Termination/Restart.

If the satellite functional capabilities test has to be terminated, the TET will collect paper hard copies of all logs generated by the proposed system, all product outputs, all OCT certification sheets associated with the test, and the official redlined test procedure as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.2.3 Test Data Reduction and Analysis.

The requirements associated with the satellite functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration that the proposed system has the capability to acquire and display satellite products. Applicable product display requirements will be

verified through visual analysis and by comparing products produced during the test with satellite products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is consistent with product information and/or data obtained by the FAA. This data will be analyzed off-line to verify the requirements listed in section 3.2.1.2 above. The received products log will be analyzed to verify the timely receipt of all available satellite products.

3.2.3.1 Recording and Reduction Requirements.

The TET will collect from the offeror color hard copies of all displayed satellite products and a hard copy output of the product reception log. Corresponding products used for product validation will be collected by the FAA from approved sources. To facilitate analysis, all product hard copies shall be time and date stamped.

3.2.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.3 TEST NUMBER 3 - LIGHTNING.

3.3.1 Lightning Functional Capabilities Test.

The lightning product test of the WARP OCT verifies the capability of the offeror's system to meet the functional requirements for the acquisition and generation/display of a national lightning product as specified in sections 3.2.1.1.1.1.3 and 3.2.1.1.2.1.3.2 of the WARP specification.

3.3.1.1 Description.

The lightning product test will require selection for generation/display of a national lightning product on the offeror's system. The national lightning product will be verified against hard copy outputs of lightning or similar products of the same date and time stamp obtained by the FAA.

3.3.1.2 Test Objectives.

The following WARP system requirement will be verified by OCT test 3:

3.2.1.1.1.1.3	Lightning products
3.2.1.1.1.1.3.1	Areas of coverage
3.2.1.1.2.1.3.2.1	National lightning product
3.2.1.1.2.1.3.2.3(a)	Age of each stroke
3.2.1.1.2.1.3.2.3(b)	Polarity of each stroke
3.2.1.1.2.1.3.2.3(c)	Latitude/Longitude location
3.2.1.1.2.1.3.2.3(d)	WARP System Projection
3.2.1.1.2.1.3.2.3(g)	Product display areal extent
3.2.1.1.2.1.3.2.4	Coverage area selection
3.2.1.1.4.1.1.1	Product reception log
3.2.1.1.4.1.2(c)	Log requests
Appendix C, Table 30-1	Product Acquisition Performance Requirements

3.3.2 Detailed Test Operations.

3.3.2.1 Test Setup.

The offeror's proposed system shall be in the operational state as described in section 3 and where the proposed system is receiving national lightning data, capable of routinely generating/displaying national lightning products in response to user requests, and is maintaining a database of all generated lightning products. The TET will have to coordinate the collection of the set of product outputs that will be used to validate the products of the offeror's system.

3.3.2.2 Test Conduct.

The lightning functional capabilities test will be conducted in accordance with the generic procedures for test number 3 listed in appendix A and the associated detailed procedures developed by the offeror.

3.3.2.3 Test Termination/Restart.

If the lightning functional capabilities test has to be terminated, the TET will collect paper hard copies of all logs generated by the proposed system, all product outputs, the OCT certification sheets, and the official redlined test procedure as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.3.3 Test Data Reduction and Analysis.

The requirements associated with the lightning functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration that the proposed system has the capability to acquire and display lightning products. Applicable requirements will be verified through visual analysis and by comparing products produced during the test with lightning products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is consistent with product information and/or data obtained by the FAA. This data will be analyzed off-line to verify the requirements listed in section 3.3.1.2 above. The received products log will be analyzed to verify the timely receipt of all available lightning products.

3.3.3.1 Recording and Reduction Requirements.

All lightning products requested for display will be printed as color hard copies for collection by the FAA. The FAA will also receive a hard copy of the product reception log. Corresponding products used for product validation will be collected by the TET from approved sources. To facilitate analysis, all product hard copies shall be time and date stamped.

3.3.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.4 TEST NUMBER 4 - RECEIVED ALPHANUMERIC PRODUCTS.

3.4.1 Received Alphanumeric Products Functional Capabilities Test.

The alphanumeric functional capabilities test of the WARP OCT verifies the capability of the system to meet the functional requirements for alphanumeric product processing as specified in sections 3.2.1.1.1.1.4 and 3.2.1.1.2.1.2 for those products listed in appendix A, table A-2 of the WARP system specification.

3.4.1.1 Description.

The alphanumeric product display test will require the selection for display of a set of alphanumeric products on the offeror's system. The TET will identify at the OCT the set of products to

be displayed. Hard copies of product outputs will be verified against a baseline set of product outputs obtained by the FAA for the same date and time.

3.4.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 4:

3.2.1.1.1.1.4	Alphanumeric products
3.2.1.1.1.1.4.1	Areas of coverage
3.2.1.1.2.1.2.1	Display products
3.2.1.1.2.1.2.2	Coverage area selection
3.2.1.1.2.1.2.3(a)	Request product and associated corrections
3.2.1.1.4.1.1.1	Product reception log
3.2.1.1.4.1.2(c)	Log requests
Appendix C, Table 30-1	Product Acquisition Performance Requirements

3.4.2 Detailed Test Operations.

3.4.2.1 Test Setup.

The offeror's proposed system shall be in the operational state as described in section 3 and where the system is receiving alphanumeric products, capable of displaying alphanumeric products in response to user requests, and is retaining all received alphanumeric products. The TET will have to coordinate the collection of the set of product outputs that will be used to validate the products of the offeror's system.

3.4.2.2 Test Conduct.

The alphanumeric functional capabilities test will be conducted in accordance with the generic procedures for test number 4 listed in appendix I and the associated detailed procedures developed by the offeror.

3.4.2.3 Test Termination/Restart.

If the alphanumeric functional capabilities test has to be terminated, the TET will collect all logs generated by the system, all product hard copies, the OCT certification sheets, and the official redlined test procedure as executed. The TET

leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.4.3 Test Data Reduction and Analysis.

The requirements associated with the alphanumeric functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration, that the proposed system has the capability to acquire and display alphanumeric products. Applicable product display requirements will be verified through additional visual analysis by comparing products produced during the test with alphanumeric products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is consistent with product information and/or data obtained by the FAA. This data will be analyzed off-line to verify the requirements associated with alphanumeric processing listed in section 3.4.1.2 above. The received products log will be analyzed to verify the timely receipt of all available alphanumeric products.

3.4.3.1 Recording and Reduction Requirements.

All alphanumeric products requested for display will be printed as hard copies for collection by the TET. The TET will also collect a hard copy output of the product reception log. Corresponding products used for product validation will be collected by the FAA from approved sources.

3.4.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.5 TEST NUMBER 5 - NWS GRAPHIC PRODUCTS.

3.5.1 NWS Graphic Products Capabilities Test.

The NWS Graphic Products Capabilities Test of the WARP OCT verifies the capability of the offeror's system to meet the functional requirements for the acquisition and display of National Weather Service (NWS) graphic products as specified in sections 3.2.1.1.1.1.6 and 3.2.1.1.2.1.3.1, respectively, of the WARP specification for those graphic products listed in table A-7 of the WARP system specification.

3.5.1.1 Description.

The NWS products demonstration will require selection for the display of a set of NWS graphic products on the offeror's system. The TET will identify at the OCT the set of products to be displayed. Hard copies of product outputs will be verified against a baseline set of product outputs obtained by the FAA for the same date and time.

3.5.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 5:

3.2.1.1.1.1.6	Graphic products
3.2.1.1.2.1.3.1	NWS graphic products
3.2.1.1.4.1.1.1	Product reception log
3.2.1.1.4.1.2	Log requests

3.5.2 Detailed Test Operations.

3.5.2.1 Test Setup.

The offeror's proposed system shall be in the operational state as described in section 3 and where the system is receiving NWS graphic products, capable of routinely generating/displaying graphic products in response to user requests, and is retaining all received NWS products. The TET will have to coordinate the collection of the set of product outputs that will be used to validate the products of the offeror's system.

3.5.2.2 Test Conduct.

The NWS graphic products capabilities test will be conducted in accordance with the generic procedures for test number 5 listed in appendix A and the associated detailed procedures developed by the offeror.

3.5.2.3 Test Termination/Restart.

If the NWS graphic products capabilities test has to be terminated, the TET will collect all product hard copies, hard copies of all logs generated by the system, OCT certification sheets, and the official redlined procedure as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.5.3 Test Data Reduction and Analysis.

The requirements associated with the NWS graphic products capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration, that the proposed system has the capability to acquire and display NWS graphic products. Applicable product display requirements will be verified through visual analysis and by comparing products produced during the test with NWS graphic products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is consistent with product information and/or data obtained by the FAA. The TET will check to make sure that individual graphic products are displayed unaltered. This data will be analyzed off-line to verify the requirements listed in section 3.5.1.2 above. The received product log will be analyzed to verify timely receipt of all available NWS graphic products.

3.5.3.1 Recording and Reduction Requirements.

All NWS graphic products requested for display will be printed as color hard copies for collection by the TET. The TET will also obtain a hard copy output of the products reception log. Corresponding products used for product validation will be collected by the FAA from approved sources. To facilitate analysis, all product hard copies shall be time and date stamped.

3.5.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.6 TEST NUMBER 6 - WATCH, WARNING, ADVISORY PRODUCTS.

3.6.1 Watch, Warning, Advisory Functional Capabilities Test.

The Watch, Warning, Advisory (W/W/A) products demonstration of the WARP OCT verifies the capability of the offeror's system to meet the functional requirements for the generation/display of W/W/A products as specified in section 3.2.1.1.2.1.3.3 of the WARP specification.

3.6.1.1 Description.

The W/W/A products test will require selection for display of "locally generated" graphical displays of watches and warning,

areas on the offeror's system. Locally generated products are those products that are produced solely by the offeror's system utilizing external data sources as inputs. Hard copies of product output will be verified against the set of product outputs obtained by the FAA for the same data types, area of coverage, and date/time group.

3.6.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 6:

3.2.1.1.2.1.3.3	Watch, warning, and advisory (W/W/A) products
3.2.1.1.2.1.3.3.1	Coverage area selection
3.2.1.1.2.1.3.3.2(a)	Projection
3.2.1.1.2.1.3.3.2(c)	Display full areal extent
3.2.1.1.2.1.3.3.2(d)	Unique ID
3.2.1.1.2.1.3.3.2(f)	Polygon overlap delineation

3.6.2 Detailed Test.

3.6.2.1 Test Setup.

The offeror's proposed system shall be in the operational state as described in section 3 and where the system is receiving NWS advisory, watches, and warning alphanumeric products, capable of routinely generating/displaying graphical displays of W/W/A products in response to user requests, and is maintaining a database of these products. The TET will have to coordinate the collection of the set of product outputs that will be used to validate the products of the offeror's system.

3.6.2.2 Test Conduct.

The W/W/A functional capabilities test will be conducted in accordance with the generic procedures for test number 6 listed in appendix A and the associated detailed procedures developed by the offeror.

3.6.2.3 Test Termination/Restart.

If the W/W/A functional capabilities test has to be terminated, the TET will collect all product hard copies, all OCT certification sheets, and the official redlined test procedure as

executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.6.3 Test Data Reduction and Analysis.

The requirements associated with the W/W/A functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration, that the proposed system has the capability to generate and display W/W/A graphic products. Applicable product display requirements will be verified through visual analysis and by comparing products produced during the test with corresponding alphanumeric products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is consistent with product information and/or data obtained by the FAA. This data will be analyzed off-line to verify the requirements listed in section 3.6.1.2 above.

3.6.3.1 Recording and Reduction Requirements.

All W/W/A graphic products requested for display and associated alphanumeric products will be printed as color hard copies for collection by the TET. Corresponding products used for product validation will be collected by the FAA from approved sources.

3.6.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.7 TEST NUMBER 7 - PLOT PRODUCTS.

3.7.1 Plot Products Functional Capabilities Test.

The plot products test of the WARP OCT verifies the capability of the offeror's system to meet the functional requirements for the generation/display of plot products as specified in section 3.2.1.1.2.1.3.4 of the WARP specification.

3.7.1.1 Description.

The plot products test will require selection for display of "locally generated" graphical displays of surface and upper air observations station model plots and data plots of gridded data on the offeror's system. Locally generated products are those

products that are produced solely by the offeror's system utilizing external data sources as inputs. The TET will identify at the OCT the set of products to be displayed. Hard copies of product output will be verified against the set of product outputs obtained by the FAA for the same stations, data types, area of coverage, and date/time group.

3.7.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 7:

3.2.1.1.2.1.3.4(a) (1)	Plots - Surface observations
3.2.1.1.2.1.3.4(a) (2)	Plots - Upper air observations
3.2.1.1.2.1.3.4.1	Coverage area selection
3.2.1.1.2.1.3.4.2	Pressure level and time selection
3.2.1.1.2.1.3.4.3	Parameter selection
3.2.1.1.2.1.3.4.4(a)	Discernible parameters
3.2.1.1.2.1.3.4.4(b)	Automatic declutter
3.2.1.1.2.1.3.4.4(c)	Projection
3.2.1.1.2.1.3.4.4(d)	WMO codes
3.2.1.1.2.1.3.4.4(f)	Display full areal extent
3.2.1.1.2.1.3.4.4(g)	Wind direction and speed

3.7.2 Detailed Test Operations.

3.7.2.1 Test Setup.

The offeror's proposed system shall be in the operational state as described in section 3 and where the system is receiving the necessary meteorological input data, capable of routinely generating/displaying plot products in response to user requests, and is retaining these products. The TET will have to coordinate the collection of the set of product outputs that will be used to validate the products of the offeror's system.

3.7.2.2 Test Conduct.

The plot functional capabilities test will be conducted in accordance with the generic procedures for test number 7 listed in appendix A and the associated detailed procedures developed by the offeror.

3.7.2.3 Test Termination/Restart.

If the plot functional capabilities test has to be terminated, the TET will collect all product hard copies, all OCT certification sheets, and the official redlined test procedure as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.7.3 Test Data Reduction and Analysis.

The requirements associated with the plot functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration, that the proposed system has the capability to generate and display plot products. Applicable product display requirements will be verified through visual analysis and by comparing products produced during the test with plot products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is consistent with product information and/or data obtained by the FAA. This data will be analyzed off-line to verify the requirements listed in section 3.7.1.2 above.

3.7.3.1 Recording and Reduction Requirements.

All plot products requested for display will be printed as color hard copies for collection by the TET. Corresponding products used for product validation will be collected by the FAA from approved sources. To facilitate analysis, all product hard copies shall be time and date stamped.

3.7.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.8 TEST NUMBER 8 - THERMODYNAMIC PRODUCTS.

3.8.1 Thermodynamic Products Functional Capabilities Test.

The thermodynamic products test of the WARP OCT verifies the capability of the offeror's system to meet the functional requirements for the generation/display of thermodynamic products as specified in section 3.2.1.1.2.1.3.5 of the WARP specification.

3.8.1.1 Description.

The thermodynamic products test will require selection for display of "locally generated" graphical displays of thermodynamic analyses and related indices developed from surface and upper air observations and gridded model data on the offeror's system. Locally generated products are those products that are produced solely by the offeror's system utilizing external data sources as inputs. The TET will identify at the OCT the set of products to be displayed. Hard copies of product output will be verified against the set of product outputs obtained by the FAA for the same stations, data types, area of coverage, and date/time group.

3.8.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 8:

3.2.1.1.2.1.3.5	Thermodynamic product
3.2.1.1.2.1.3.5.1	Derived thermodynamic values
3.2.1.1.2.1.3.5.2	Location selection
3.2.1.1.2.1.3.5.3(a)	Plot on thermo diagram
3.2.1.1.2.1.3.5.3(b)	Temperature line segments
3.2.1.1.2.1.3.5.3(c)	Dew point temp line segments
3.2.1.1.2.1.3.5.3(d)	Wind speed wind barb font
3.2.1.1.2.1.3.5.3(e)	Wind direction wind barb font
3.2.1.1.2.1.3.5.3(f)	Pressure heights to left
3.2.1.1.2.1.3.5.3(g)	Derived thermo values not obscure display
3.2.1.1.2.1.3.5.3(h)	Display full extent of diagram

3.8.2 Detailed Test Operations.

3.8.2.1 Test Setup.

The offeror's proposed system shall be in the operational state as described in section 3 and where the system is receiving all necessary meteorological input data, capable of routinely generating/displaying graphical displays of thermodynamic products and related indices in response to a user requests, and maintaining a database of generated products. The TET will have to coordinate the collection of the set of product outputs that will be used to validate the products of the offeror's system.

3.8.2.2 Test Conduct.

The thermodynamic product functional capabilities test will be conducted in accordance with the generic procedures for test number 8 listed in appendix A and the associated detailed procedures developed by the offeror.

3.8.2.3 Test Termination/Restart.

If the thermodynamic product functional capabilities test has to be terminated, the TET will collect all product hard copies, the OCT certification sheets, and the official redlined test procedure as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.8.3 Test Data Reduction and Analysis.

The requirements associated with the thermodynamic products functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration, that the proposed system has the capability to generate and display thermodynamic products. Applicable product display requirements will be verified through visual analysis and by comparing products produced during the test with thermodynamic products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is consistent with product information and/or data obtained by the FAA. This data will be analyzed off-line to verify the requirements listed in section 3.8.1.2 above.

3.8.3.1 Recording and Reduction Requirements.

All thermodynamic analysis products requested for display will be printed as color hard copies for collection by the TET. Corresponding products used for product validation will be collected by the FAA from approved sources. To facilitate analysis, all product hard copies shall be time and date stamped.

3.8.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.9 TEST NUMBER 9 - CONTOUR ANALYSIS PRODUCTS.

3.9.1 Contour Analysis Products Functional Capabilities Test.

The Contour Analysis Products test of the WARP OCT verifies the capability of the offeror's system to meet the functional requirements for the generation/display of contour analyses as specified in section 3.2.1.1.2.1.3.7 of the WARP specification.

3.9.1.1 Description.

The Contour Analysis Products test will require selection for display of "locally generated" graphical displays of contour analyses from surface and upper air observations and gridded model data on the offeror's system. Locally generated products are those products that are produced solely by the offeror's system utilizing external data sources as inputs. The TET will identify at the OCT the set of products to be displayed. Hard copies of product output will be verified against the set of product outputs obtained by the FAA for the same analyses, data types, area of coverage, and date/time group.

3.9.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 9:

3.2.1.1.1.1.5	Gridded products
3.2.1.1.1.1.5.1	Areas of coverage
3.2.1.1.2.1.3.7	Contour analyses
3.2.1.1.2.1.3.7.1(a)(1)	Parameter selection - unevenly spaced data, surface data
3.2.1.1.2.1.3.7.1(a)(2)	Parameter selection - unevenly spaced data, Upper air data
3.2.1.1.2.1.3.7.1(b)(1)	Parameter selection - evenly spaced data, 1000 mb
3.2.1.1.2.1.3.7.1(b)(2)	Parameter selection - evenly spaced data, upper air
3.2.1.1.2.1.3.7.2	Coverage area selection
3.2.1.1.2.1.3.7.3	Pressure level and time selection
3.2.1.1.2.1.3.7.4	NMC forecast model selection
3.2.1.1.2.1.3.7.5(a)	Clearly labelled contours
3.2.1.1.2.1.3.7.5(b)	Max, min special characters
3.2.1.1.2.1.3.7.5(c)	Display smooth curved contours
3.2.1.1.2.1.3.7.5(d)	Projection
3.2.1.1.2.1.3.7.5(e)	Display full areal extent

3.9.2 Detailed Test Operations.

3.9.2.1 Test Setup.

The offeror's proposed system shall be in the operational state as described in section 3 and where the system is receiving all necessary meteorological input data, capable of routinely generating/displaying graphical displays of contour products in response to user requests, and maintaining a database of generated products. The TET will have to coordinate the collection of the set of product outputs that will be used to validate the products of the offeror's system.

3.9.2.2 Test Conduct.

The contour analysis products functional capabilities test will be conducted in accordance with the generic procedures for test number 9 listed in appendix A and the associated detailed procedures developed by the offeror.

3.9.2.3 Test Termination/Restart.

If the contour analysis products functional capabilities test has to be terminated, the TET will collect all product hard copies, all OCT certification sheets, and the official redlined test procedure as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.9.3 Test Data Reduction and Analysis.

The requirements associated with the contour analysis products functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration that the proposed system has the capability to acquire and display contour analysis products. Applicable product display requirements will be verified through visual analysis and by comparing products produced during the test with contour analysis products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is consistent with product information and/or data obtained by the FAA. This data will be analyzed off-line to verify the requirements listed in section 3.9.1.2 above.

3.9.3.1 Recording and Reduction Requirements.

All contour analyses requested for display will be printed as color hard copies for collection by the TET. Corresponding products used for product validation will be collected by the FAA from approved sources. To facilitate analysis, all product hard copies shall be time and date stamped.

3.9.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.10 TEST NUMBER 10 - STREAMLINE ANALYSIS PRODUCTS.

3.10.1 Streamline Analysis Products Functional Capabilities Test.

The streamline analysis products test of the WARP OCT verifies the capability of the offeror's system to meet the functional requirements for the generation/display of streamline analyses as specified in section 3.2.1.1.2.1.3.8 of the WARP specification.

3.10.1.1 Description.

The streamline analysis products test will require selection for display of "locally generated" graphical displays of streamline analyses from surface and upper air observations and gridded model data on the offeror's system. Locally generated products are those products that are produced solely by the offeror's system utilizing external data sources as inputs. The TET will identify at the OCT the set of products to be displayed. Hard copies of product output will be verified against the set of product outputs obtained by the FAA for the same analyses, data types, area of coverage, and date/time group.

3.10.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 10:

3.2.1.1.1.1.5	Gridded products
3.2.1.1.1.1.5.1	Areas of coverage
3.2.1.1.2.1.3.8	Streamline analyses
3.2.1.1.2.1.3.8.1	Coverage area selection
3.2.1.1.2.1.3.8.2	Pressure level and time selection
3.2.1.1.2.1.3.8.3	NMC forecast model selection
3.2.1.1.2.1.3.8.4(a)	Display isotachs w/values

3.2.1.1.2.1.3.8.4(b)	Max, min special characters
3.2.1.1.2.1.3.8.4(c)	Direction of flow arrowheads
3.2.1.1.2.1.3.8.4(d)	Projection
3.2.1.1.2.1.3.8.4(e)	Display full areal extent

3.10.2 Detailed Test Operations.

3.10.2.1 Test Setup.

The offeror's system shall be in the operational state as described in section 3 and where the system is receiving all necessary meteorological input data, capable of routinely generating/displaying graphical displays of streamline analysis products in response to user requests, and maintaining a database of generated products. The TET will have to coordinate the collection of the set of product outputs that will be used to validate the products of the offeror's system.

3.10.2.2 Test Conduct.

The streamline analyses product functional capabilities test will be conducted in accordance with the generic procedures for test number 10 listed in appendix A and the associated detailed procedures developed by the offeror.

3.10.2.3 Test Termination/Restart.

If the streamline analyses product functional capabilities test has to be terminated, the TET will collect all product hard copies, all OCT certification sheets, and the official redlined test procedure as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.10.3 Test Data Reduction and Analysis.

The requirements associated with the streamline analysis products functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration that the proposed system has the capability to acquire and display streamline analysis products. Applicable requirements will be verified through visual analysis and by comparing products produced during the test with streamline analysis products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is

consistent with product information and/or data obtained by the FAA. This data will be analyzed off-line to verify the requirements listed in section 3.10.1.2 above.

3.10.3.1 Recording and Reduction Requirements.

All streamline analyses requested for display will be printed as color hard copies for collection by the TET. Corresponding products used for product validation will be collected by the FAA from approved sources. To facilitate analysis, all product hard copies shall be time and date stamped.

3.10.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.11 TEST NUMBER 11 - VERTICAL CROSS-SECTION ANALYSIS PRODUCTS.

3.11.1 Vertical Cross-section Analysis Products Functional Capabilities Test.

The vertical cross-section analysis products test of the WARP OCT verifies the capability of the offeror's system to meet the functional requirements for the generation/display of vertical cross-section analyses as specified in section 3.2.1.1.2.1.3.9 of the WARP specification.

3.11.1.1 Description.

The vertical cross-section analysis products test will require selection for display of "locally generated" graphical displays of vertical cross-section analyses developed from surface and upper air observations and gridded model data on the offeror's system. Locally generated products are those products that are produced solely by the offeror's system utilizing external data sources as inputs. The TET will identify at the OCT the set of products to be displayed. Hard copies of product output will be verified against the set of product outputs obtained by the FAA for the same analyses, data types, area of coverage, and date/time group.

3.11.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 11:

3.2.1.1.1.1.5	Gridded products
3.2.1.1.1.1.5.1	Areas of coverage
3.2.1.1.2.1.3.9	Vertical cross-section analyses
3.2.1.1.2.1.3.9.1	Evenly spaced data (gridded)
3.2.1.1.2.1.3.9.2(a)	Unevenly spaced data - observed
3.2.1.1.2.1.3.9.2(b)	Unevenly spaced data - derived
3.2.1.1.2.1.3.9.3	Coverage area selection
3.2.1.1.2.1.3.9.4(a)	Clearly label contours
3.2.1.1.2.1.3.9.4(b)	Max, min special characters
3.2.1.1.2.1.3.9.4(c)	Station/location relative positions
3.2.1.1.2.1.3.9.4(d)	Display full areal extent
3.2.1.1.2.1.3.9.4(e)	Display smooth curved contours

3.11.2 Detailed Test Operations.

3.11.2.1 Test Setup.

The offeror's system shall be in the operational state as described in section 3 and where the system is receiving all necessary meteorological input data, capable of routinely generating/displaying graphical displays of vertical cross-section analysis products in response to user requests, and maintaining a database of generated products. The TET will have to coordinate the collection of the set of product outputs that will be used to validate the products of the offeror's system.

3.11.2.2 Test Conduct.

The cross-section analyses product functional capabilities test will be conducted in accordance with the generic procedures for test number 11 listed in appendix A and the associated detailed procedures developed by the offeror.

3.11.2.3 Test Termination/Restart.

If the cross-section analyses product functional capabilities test has to be terminated, the TET will collect all product hard copies, all OCT certification sheets, and the official redlined test procedure as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.11.3 Test Data Reduction and Analysis.

The requirements associated with the vertical cross-section analysis products functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration that the proposed system has the capability to acquire and display vertical cross-section analysis products. Applicable requirements will be verified through visual analysis and by comparing products produced during the test with vertical cross-section analysis products obtained by the FAA from approved sources. Comparison will determine if weather information provided by the offeror is consistent with product information and/or data obtained by the FAA. This data will be analyzed off-line to verify the requirements listed in section 3.11.1.2 above.

3.11.3.1 Recording and Reduction Requirements.

All vertical cross-section analyses requested for display will be printed as color hard copies for collection by the TET. Corresponding products used for product validation will be collected by the FAA from approved sources. To facilitate analysis, all product hard copies shall be time and date stamped.

3.11.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.12 TEST NUMBER 12 - ALARM/ALERT.

3.12.1 Alarm/Alert Functional Capabilities Test.

The alarm/alert functional capabilities test of the WARP OCT verifies the capability of the system to meet the functional requirements for weather alarm/alert processing as specified in section 3.2.1.1.3 of the WARP specification.

3.12.1.1 Description.

The alarm/alert capabilities test will require configuring the offeror's system to initiate and present notification of weather associated alarm/alerts at the meteorologist workstation and at the briefing terminals. This test will demonstrate the generation of an alarm/alert upon receipt of a product tagged for such notification and monitor incoming weather products and initiate an alarm/alert when user-specified weather conditions

exist. Audible and visual alarm/alert characteristics at the meteorologist workstation and the briefing terminal will be demonstrated by the offeror upon initiation of an alarm/alert.

3.12.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 12:

- | | |
|----------------------|---|
| 3.2.1.1.3.1 | Meteorologist workstation alarm/alert notification requirements |
| 3.2.1.1.3.1.1 | Product alarm/alert |
| 3.2.1.1.3.1.2 | Weather alarm/alert |
| 3.2.1.1.3.3 | Audible and visual characteristics |
| 3.2.1.1.3.3.1(a,b,e) | Workstation |
| 3.2.1.1.3.4 | Performance |

3.12.2 Detailed Test Operations.

3.12.2.1 Test Setup.

The offeror's system shall be in the operational state as described in section 3 and where the proposed system is receiving products on a routine basis and is capable of performing alarm/alert processing.

3.12.2.2 Test Conduct.

The alarm/alert functional capabilities test will be conducted in accordance with the generic procedures for test number 12 listed in appendix A and the associated detailed procedures developed by the offeror.

3.12.2.3 Test Termination/Restart.

If the alarm/alert functional capabilities test has to be terminated, the TET will collect hard copies of alert messages, all OCT certification sheets, and the official redlined test procedure as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.12.3 Test Data Reduction and Analysis.

The requirements associated with the alarm/alert functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration, that the proposed system has the capability to set alarm/alert thresholds, the capability to detect alarm/alert conditions, and the capability to notify the user by audible and visual techniques. The TET will perform various analyses of system generated alert messages and hard copies of selected products that initiated the alerts to determine if the proposed system is detecting alarm/alert conditions correctly. This data will be analyzed off-line to verify the requirements listed in section 3.12.1.2.

3.12.3.1 Recording and Reduction Requirements.

All products requested for alarm/alert on arrival or threshold setting will be printed on hard copy for comparison and analysis.

3.12.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.13 TEST NUMBER 13 - WARP MONITORING AND CONTROL.

3.13.1 WARP Monitoring and Control Functional Capabilities Test.

The WARP monitoring and control function test of the WARP OCT verifies the capability of the system to meet the functional requirements for WARP system monitoring and control as specified in section 3.2.1.1.5 of the WARP specification and for system alarm/alert processing as specified in 3.2.1.1.3.1.3.

3.13.1.1 Description.

The WARP monitoring and control function test will verify the capability of the offeror's system to detect and report system failures and to provide a user-friendly and secure approach to system operations. Test 13 will require emulation of TET selected system failures to verify the monitoring and alarm/alert reporting of these system failures as well as performance of TET selected WARP system operations and housekeeping functions.

3.13.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 13:

3.2.1.1.3.1.3	System alarm/alert
3.2.1.1.5.1.1	Processing
3.2.1.1.5.2.1	System startup/restart
3.2.1.1.5.2.1.1	Transition to operational
3.2.1.1.5.2.2	System shutdown
3.2.1.1.5.2.2.1	Shutdown processing
3.2.1.1.5.2.3	System security
(a,b,e,f)	
3.2.1.1.5.2.4	Housekeeping functions
(a,b,c,e,f,g)	
3.2.1.1.3.3	Audible and visual characteristics
3.2.1.1.3.3.1(a,b,e)	Workstation

3.13.2 Detailed Test Operations.

3.13.2.1 Test Setup.

The offeror's system will be powered off at the start of the monitoring and control test. Test 13 will commence from a pre-initial program load state.

3.13.2.2 Test Conduct.

The WARP monitoring and control functional capabilities test will be conducted in accordance with the generic procedures for test number 13 listed in appendix A and the associated detailed procedures developed by the offeror.

3.13.2.3 Test Termination/Restart.

If the WARP monitoring and control functional capabilities test has to be terminated, the TET will collect printed copies of all system messages, all OCT certification sheets, and the test procedures as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.13.3 Test Data Reduction and Analysis.

The requirements associated with the monitoring and control functional capabilities test will be verified by demonstration

and analysis. The FAA will verify through demonstration, that the proposed system has the capability to perform system monitoring functions, such as monitoring system characteristics and issuing an alarm to the user if conditions meet criteria. The FAA will also verify through demonstration that the proposed system has the capability to perform control functions, such as system startup and shutdown and the capability to perform certain system housekeeping functions. Through analysis of system response messages, the TET will determine if the correct response to system failures and system operations were performed correctly by the proposed system. This data will be analyzed off-line to verify the requirements listed in section 3.13.1.2.

3.13.3.1 Recording and Reduction Requirements.

All monitoring and control messages will be displayed and printed.

3.13.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.14 TEST NUMBER 14 - COMPUTER-HUMAN-INTERFACE (CHI).

3.14.1 WARP CHI Functional Capabilities Test.

The WARP CHI function test of the WARP OCT verifies the capability of the system to meet the functional requirements for WARP system CHI as specified in sections 3.2.1.1.2.2, 3.2.1.1.2.3, and 3.3.7.2 of the WARP specification.

3.14.1.1 Description.

The WARP CHI function test will require the selection of products for display, manipulation, and annotation, including CHI graphic, alphanumeric, radar, satellite, lightning, and NWS graphic/gridded data, at the meteorologist workstation on the offeror's system. Product display and manipulation of these products will also be demonstrated at the briefing terminals on the offeror's system.

3.14.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 14:

Meteorologist Workstation

3.2.1.1.2.1.2.4	Manually generated alpha products
3.2.1.1.2.1.3.10	Manually generated graphics
3.2.1.1.2.1.3.10.1(a)	Discernible parameters
3.2.1.1.2.1.3.10.1(b)	Projection
3.2.1.1.2.1.3.10.1(c)	Display full areal extent
3.2.1.1.2.2.1	Products
3.2.1.1.2.2.2	Automatic update
3.2.1.1.2.2.2.1	Automatic update selection
3.2.1.1.2.2.3.1	Display area
3.2.1.1.2.2.3.2	Screen and window control
3.2.1.1.2.2.4	Display backgrounds
3.2.1.1.2.2.4.1	Projections
3.2.1.1.2.2.4.3	Display background modifications
3.2.1.1.2.2.5	Overlays
3.2.1.1.2.2.5.1	Legends
3.2.1.1.2.2.5.2	Product removal
3.2.1.1.2.2.5.3	Overlay precedence
3.2.1.1.2.2.6	Zoom
3.2.1.1.2.2.6.1	Images
3.2.1.1.2.2.6.2	Graphics
3.2.1.1.2.2.6.3	Legends
3.2.1.1.2.2.7	Pan
3.2.1.1.2.2.8	Animation
3.2.1.1.2.2.9	Combined capabilities
3.2.1.1.2.2.10	Product sequencing
3.2.1.1.2.2.11	Color
3.2.1.1.2.2.14.1	Alphanumeric
3.2.1.1.2.2.14.2	Image and graphics
3.2.1.1.2.2.15.1.1	Text processing
3.2.1.1.2.2.15.1.2	Graphic processing
3.2.1.1.2.2.15.1.3	Legends
3.2.1.1.2.2.15.1.4	Storage
3.2.1.1.2.2.16	Product display request
3.2.1.1.2.2.16.1.1	Routine individual radar products
3.2.1.1.2.2.16.1.3.1	Mosaic product request
3.2.1.1.2.2.16.2.1(a-f)	Alphanumeric product request
3.2.1.1.2.2.16.2.2	Collectives
3.2.1.1.2.2.16.2.3	Alphanumeric display
3.2.1.1.2.2.16.3.1	Graphic product request
3.2.1.1.2.2.16.4	Retained product directory
3.2.1.1.2.2.17	Legends
3.3.7.2	User interface requirements

Briefing Terminal

3.2.1.1.2.3.1	Individual product request
3.2.1.1.2.3.2	Automatic update

3.2.1.1.2.3.3.1	Display area
3.2.1.1.2.3.3.2	Screen and window control
3.2.1.1.2.3.4	Retained product directory
3.2.1.1.2.3.5	Display backgrounds
3.2.1.1.2.3.6	Overlay and projections
3.2.1.1.2.3.7	Legends
3.2.1.1.2.3.8	Zoom
3.2.1.1.2.3.9	Pan
3.2.1.1.2.3.11	Product sequencing
3.2.1.1.2.3.12	Color
3.2.1.1.2.3.13	Color hard copy

3.14.2 Detailed Test Operations.

3.14.2.1 Test Setup.

The offeror's system shall be in the operational state as described in section 3 and where the proposed system is receiving all weather products on a routine basis and is retaining all received products for the duration of the CHI test at a minimum. Briefing terminals also shall be in the operational state and are capable of product display and manipulation.

3.14.2.2 Test Conduct.

The WARP CHI functional capabilities test will be conducted in accordance with the generic procedures for test number 14 listed in appendix A and the associated detailed procedures developed by the offeror.

3.14.2.3 Test Termination/Restart.

If the WARP CHI functional capabilities test has to be terminated, the TET will collect all OCT certification sheets and the test procedures as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.14.3 Test Data Reduction and Analysis.

The requirements associated with the CHI functional capabilities test will be verified by demonstration and analysis. The FAA will verify through demonstration that the proposed system has the capability to perform CHI functions on both the meteorologist workstation and the briefing terminal. Applicable product

display requirements will be verified through visual analysis. Timestamp information located on hard copies of product outputs will be analyzed to verify if certain requested products are updated in a timely manner. This data will be analyzed off-line to verify the requirements listed in section 3.14.1.2.

3.14.3.1 Recording and Reduction Requirements.

All products requested for display will be hard copy outputs. To facilitate analysis, all product hard copies shall be time and date stamped.

3.14.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.15 TEST NUMBER 15 - WARP RETENTION.

3.15.1 WARP Retention Functional Capabilities Test.

The WARP retention function test of the WARP OCT verifies the capability of the system to meet the functional requirements for WARP system retention as specified in section 3.2.1.1.4.2 of the WARP specification.

3.15.1.1 Description.

The WARP retention function test will verify the capability of the offeror's system to retain in mass storage the numbers of versions of products specified in section 3.2.1.1.4.2.

3.15.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 15:

3.2.1.1.4.2	Retention
3.2.1.1.2.2.16.4	Retained product directory

3.15.2 Detailed Test Operations.

3.15.2.1 Test Setup.

The offeror's system shall be in the operational state as described in section 3 where the proposed system is receiving all weather products on a routine basis and is retaining all received products for the duration of the retention test at a minimum.

3.15.2.2 Test Conduct.

The WARP retention functional capabilities test will be conducted in accordance with the generic procedures for test number 15 listed in appendix A and the associated detailed procedures developed by the offeror.

3.15.2.3 Test Termination/Restart.

If the WARP retention functional capabilities test has to be terminated, the TET will collect the test procedures as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.15.3 Test Data Reduction and Analysis.

All requirements associated with the WARP retention test will be verified by analysis. The hard copy outputs of directory information will be analyzed to verify that all received products were retained as specified. The retained products will be compared with corresponding products from FAA sources to verify correct retention processing. This data will be analyzed off-line to verify the requirements listed in section 3.15.1.2.

3.15.3.1 Recording and Reduction Requirements.

The TET will collect hard copy outputs of retained products that are requested for display. In addition, hard copy outputs of retained product directory information will also be collected.

3.15.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.16 TEST NUMBER 16 - WARP ARCHIVING.

3.16.1 WARP Archiving Functional Capabilities Test.

The WARP archiving function test of the WARP OCT verifies the capability of the system to meet the functional requirements for WARP system archiving as specified in section 3.2.1.1.4.3 of the WARP specification.

3.16.1.1 Description.

The WARP archiving function test will verify the capability of the offeror's system to automatically archive up to 15 days worth of all products specified in 3.2.1.1.4.3 onto an off-line storage device and to recover for print and display any files archived to the off-line storage device. During the test, the TET will direct the offeror to create several graphical products. Hard copy outputs will be generated for these products. These generated products will then be archived via user section. Once archived, these products will be retrieved from the off-line storage or archive device. Hard copy outputs will be generated for these products as well.

3.16.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 16:

3.2.1.1.4.3.1	Products and logs
3.2.1.1.4.3.1.1	System logs
3.2.1.1.4.3.1.2	Generated products
3.2.1.1.4.3.2	Archiving requests
3.2.1.1.4.3.3	Archive storage

3.16.2 Detailed Test Operations.

3.16.2.1 Test Setup.

The offeror's system shall be in the operational state as described in section 3 and where the proposed system is receiving all weather products on a routine basis and is retaining all received products for the duration of the archiving test at a minimum.

3.16.2.2 Test Conduct.

The WARP archiving functional capabilities test will be conducted in accordance with the generic procedures for test number 16 listed in appendix A and the associated detailed procedures developed by the offeror.

3.16.2.3 Test Termination/Restart.

If the WARP archiving functional capabilities test has to be terminated, the TET will collect the test procedures as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.16.3 Test Data Reduction and Analysis.

All requirements associated with the WARP archiving test will be verified by analysis, demonstration, and inspection. Hard copy outputs of archived directory information will be analyzed to verify that all generated products were archived as specified. Products retrieved from the off-lined archive device will be compared with hard copy outputs of corresponding original outputs. The FAA will verify through demonstration that the proposed system has the capability to perform archiving functions in response to user requests. Through inspection, the FAA will determine if the archive storage media meets system requirements. This data will be analyzed off-line to verify the requirements listed in section 3.16.1.2.

3.16.3.1 Recording and Reduction Requirements.

The TET will collect hard copy outputs of archived product directory information, hard copy outputs of generated products, and hard copy outputs of products retrieved from the archive storage device.

3.16.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.17 TEST NUMBER 17 - WARP PERFORMANCE PROCESSING.

3.17.1 WARP Performance Processing Functional Capabilities Test.

The WARP concurrent processing function test of the WARP OCT verifies the capability of the system to meet the performance requirements for WARP system concurrent processing as specified in section 3.2.1.1.3.4 of the WARP specification.

3.17.1.1 Description.

The WARP concurrent processing function test will verify the capability of the offeror's system to meet the performance requirements under the system loading specified in section 3.2.1.1.2.4. and appendix C, WARP Stage 0 system performance of the WARP System Specification.

3.17.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 17:

3.2.1.1.2.4	Performance
Appendix C	WARP Stage 0 system performance

3.17.2 Detailed Test Operations.

3.17.2.1 Test Setup.

The offeror's system shall be in the operational state as described in section 3 and where the proposed system is receiving all weather products on a routine basis and is retaining all received products for the duration of the concurrent processing test at a minimum.

3.17.2.2 Test Conduct.

The WARP concurrent processing functional capabilities test will be conducted in accordance with the generic procedures for test number 17 listed in appendix A and the associated detailed procedures developed by the offeror. During the test conduct, TET members will record the performance time measurements. All time measurements will be made manually with a stopwatch.

3.17.2.3 Test Termination/Restart.

If the WARP performance processing functional capabilities test has to be terminated, the TET will collect all test procedures as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.17.3 Test Data Reduction and Analysis.

The WARP performance processing functional capabilities test will be verified through analysis and test. Fifty measurements will be made for each performance timeline to be verified. From each set of measurements, an average and a standard deviation will be calculated. Measurements will be repeated 50 times to provide a population that approaches a normal distribution. The 99.5 percentile response times (R99.5) and the maximum response time (RMAX) will be calculated from the computed average (X) and the computed standard deviation (S) by the following formulas:

$$\begin{aligned} R99.5 &= X + 2.5755 * S \\ RMAX &= X + 4.0 * S \end{aligned}$$

The average, X, the 99.5 percentile, R99.5, and the maximum response time, RMAX will be compared against performance requirements contained in appendix C of the WARP System Specification. This statistical data will be analyzed off-line to verify the requirements listed in section 3.17.1.2.

3.17.3.1 Recording and Reduction Requirements.

The TET will collect the test procedure sheets that contain the performance time measurements.

3.17.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.18 TEST NUMBER 18 - WARP ADAPTIVE OPERATION.

3.18.1 WARP Adaptive Operation Functional Capabilities Test.

The WARP adaptive operation function test of the WARP OCT verifies the capability of the system to meet the functional requirements for WARP system adaptive operation as specified in appendix D of the WARP specification.

3.18.1.1 Description.

The WARP adaptive operation function test will verify the capability of the offeror's system to set and modify user adaptation parameters as specified in tables D-2 and D-3, appendix D of the WARP Specification.

3.18.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 18:

Appendix D WARP adaption requirements

3.18.2 Detailed Test Operations.

3.18.2.1 Test Setup.

The offeror's system shall be in the operational state as described in section 3 and where the proposed system is receiving all weather products on a routine basis and is retaining all received products for the duration of the adaptive operation test at a minimum.

3.18.2.2 Test Conduct.

The WARP adaptive operation functional capabilities test will be conducted in accordance with the generic procedures for test number 18 listed in appendix A and the associated detailed procedures developed by the offeror.

3.18.2.3 Test Termination/Restart.

If the WARP adaptive operation functional capabilities test has to be terminated, the TET will collect all test procedures as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.18.3 Test Data Reduction and Analysis.

The WARP adaptive operation function test will verify associated requirements through demonstration and analysis. The FAA will verify through demonstration that the proposed system has the

capability to perform adaptation configurations in response to user requests. Hard copy outputs of meteorological analysis products will be analyzed to verify that processing on the proposed system was correctly altered by adaptation values.

3.18.3.1 Recording and Reduction Requirements.

The TET will collect all hard copy outputs of meteorological analysis products requested for display.

3.18.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

3.19 TEST NUMBER 19 - WARP SYSTEM CHARACTERISTICS.

3.19.1 WARP System Characteristics Functional Capabilities Test.

The WARP system characteristics function test of the WARP OCT verifies the capability of the system to meet the physical system characteristics as specified in sections 3.2.4 and 3.3.7.3 of the WARP Specification.

3.19.1.1 Description.

The test will consist of inspection of the offeror's system and its associated documentation for adherence to the physical characteristics specified. This test will also verify that the system presented by the offeror at the OCT matches the description provided in the offerors technical proposal.

3.19.1.2 Test Objectives.

The following WARP requirements will be verified by OCT test 19:

- | | |
|-------------|--------------------------------------|
| 3.2.4.2.1 | Workstation display console |
| 3.2.4.2.1.1 | ACF WARP workstation display console |
| 3.2.4.2.2 | Briefing terminals |
| 3.2.4.2.3 | Color hard copy device |
| 3.2.4.2.4 | Alphanumeric printer |
| 3.3.7.3 | Display equipment |

3.19.2 Detailed Test Operations.

3.19.2.1 Test Setup.

There are no requirements to operate the offeror's system during this test.

3.19.2.2 Test Conduct.

The WARP system characteristics functional capabilities test will be conducted in accordance with the generic procedures for test number 19 listed in appendix A and the associated detailed procedures developed by the offeror.

3.19.2.3 Test Termination/Restart.

If the WARP system characteristics functional capabilities test has to be terminated, the TET will collect all test procedures as executed. The TET leader will decide whether the OCT will restart and from what point in the test it will be restarted.

3.19.3 Test Data Reduction and Analysis.

The requirements associated with the WARP system characteristics functional capabilities test will be verified through inspection. The TET will analyze the results of the documentation provided for the offeror's system to verify that the proposed system can meet the WARP physical characteristics specified and to verify that the system is of the same configuration as proposed by the offeror in their technical proposal.

3.19.3.1 Recording and Reduction Requirements.

The TET will collect the measurements taken of the offeror's system and the results of the inspection of the proposed system's documentation as specified in the test procedures for test 19.

3.19.3.2 Test Design and Data Reduction/Analysis Procedures.

N/A

4. ACRONYMS AND ABBREVIATIONS.

ACF	Area Control Facility
CHI	Computer-Human-Interface
FAA	Federal Aviation Administration
IA	Intermediate Area
NA	North American
NIDS	NEXRAD Information Dissemination Service
NWS	National Weather Service
OCT	Operational Capabilities Test
RFP	Request For Proposal
TET	Technical Evaluation Team
WSR-88D	Weather Surveillance Radar 1988 Doppler
W/W/A	Watch, Warning, and Advisory
VRTM	Verification Requirement Traceability Matrix
WARP	Weather and Radar Processor

Appendix A
OCT Generic Test Procedures

WARP
Radar Products Functional Capabilities Test
Test #1

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 1

Step #	Operator Action *	Expected Results	Specification Paragraph #
Individual radar product			
1	Interactively assign colors to each radar reflectivity level as specified by the TET.	Assignment of colors to reflectivity levels are made.	3.2.1.1.2.1.1.1.3(i)
2	Request displays of individual NIDS products in the native radar projection. Number of products for display, type, time, and sites will be selected from an FAA approved list.	Displayed radar product provides same data, resolution, and coverage as the corresponding WSR-88D product. Products are displayed in the native radar projection.	3.2.1.1.1.1.1.1, 3.2.1.1.1.1.1.1.1, 3.2.1.1.2.1.1.1.3(b,g,h)
3	Request display of the base reflectivity product for YYY radar site in radar centered projection in auto update mode and cycle through 3 updates.	The base reflectivity product from site YYY is automatically updated on the display as a new product is received at the NIDS product reception rate.	3.2.1.1.1.3 Table 30-1, Appendix C
Composite reflectivity mosaic product			
4	Interactively assign colors to each radar reflectivity level.	Assignment of colors to reflectivity levels are made.	3.2.1.1.2.1.1.1.3(i)
5	Request display of the current radar mosaic product for the FAA provided ACF area of coverage.	The displayed mosaic product contains data from all radars in the ACF area of coverage. Data displayed is based on the WARP mosaic cell determination algorithm. Resolution is 4 km and the ACF area plus 150 nm buffer is covered .	3.2.1.1.1.1.1.1.1, 3.2.1.1.2.1.1.1.1.1, 3.2.1.1.2.1.1.1.1.1, 3.2.1.1.2.1.1.1.1.2 3.2.1.1.2.1.1.1.1.4, 3.2.1.1.2.1.1.1.1.5, 3.2.1.1.2.1.1.3(d,h,i,l)
6	Request display of the current radar mosaic product in the auto update mode. Run for 3 updates.	The displayed mosaic product updates every 5 minutes. Radar data older than 10 minutes is not displayed in the mosaic. The latest data from all available mosaic radars is displayed.	3.2.1.1.2.1.1.1.1.1
National radar composite reflectivity mosaic product			
7	Interactively assign colors to each radar reflectivity level.	Assignment of colors to reflectivity levels are made.	3.2.1.1.2.1.1.1.3(i)
8	Request display of the latest national mosaic product.	The displayed mosaic contains data from all available WSR-88Ds. The national mosaic provides a resolution of at least 8 km and covers the area supported by the coverage of all available WSR-88Ds.	3.2.1.1.1.1.1.2, 3.2.1.1.2.1.1.1.2 3.2.1.1.2.1.1.1.3(e,h,i,k)
9	Request display of the latest national mosaic product in the	The displayed national mosaic updates at least once every 5	3.2.1.1.2.1.1.1.2 Table 30-1

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 1

	auto update mode and cycle through 2 updates.	minutes.	
Point Products			
10	Request display of the latest point product. Request display of storm attribute table.	The point product, developed from information contained in the storm attribute table of the composite reflectivity product, is displayed. Display product agrees with information contained in the table.	3.2.1.1.2.1.1.1.0
11	Produce hard copy of the product reception log.	Hard copy of log is created.	3.2.1.1.4.1.1.1 3.2.1.1.4.1.2(c)

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Satellite Products Functional Capabilities Test
Test # 2

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlayed on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 2

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Request display of the most recent applicable NA VIS product in the required WARP system Projection.	The satellite product is displayed at a resolution of at least 14 km in the correct WARP system projection. The full areal extent of the product is displayed without panning or zooming.	3.2.1.1.1.1.2 3.2.1.1.1.1.2.1 3.2.1.1.2.1.1.2.1(a) 3.2.1.1.2.1.1.2.2(a) 3.2.1.1.2.1.1.2.2(b) 3.2.1.1.2.1.1.2.2(c)
2	Request display of the most recent applicable NA IR product in the required WARP system Projection.	The satellite product is displayed at a resolution of at least 14 km in the correct WARP system projection. The full areal extent of the product is displayed without panning or zooming.	3.2.1.1.1.1.2 3.2.1.1.1.1.2.1 3.2.1.1.2.1.1.2.1(a) 3.2.1.1.2.1.1.2.2(a) 3.2.1.1.2.1.1.2.2(b) 3.2.1.1.2.1.1.2.2(c)
3	Assign colors to selected radiance temperature values and store the image enhancement curve.	Colors are selected from a set of 256 colors. The results of the color selection is indicated on the displayed IR product.	3.2.1.1.2.1.1.2.2(d) 3.2.1.1.2.1.1.2.2(e) 3.2.1.1.2.1.1.2.2(f) 3.2.1.1.2.1.1.2.2(g)
4	Request display of the most recent IA VIS product in the required WARP system Projection.	The satellite product is displayed at the highest resolution in the correct WARP system projection.	3.2.1.1.1.1.2 3.2.1.1.1.1.2.1 3.2.1.1.2.1.1.2.1(b) 3.2.1.1.2.1.1.2.2(a) 3.2.1.1.2.1.1.2.2(b) 3.2.1.1.2.1.1.2.2(c)
5	Request display of the most recent IA IR product in the required WARP system Projection.	The satellite product is displayed at the highest resolution in the correct WARP system projection.	3.2.1.1.1.1.2 3.2.1.1.1.1.2.1 3.2.1.1.2.1.1.2.1(b) 3.2.1.1.2.1.1.2.2(a) 3.2.1.1.2.1.1.2.2(b) 3.2.1.1.2.1.1.2.2(c)
6	Request display of the most recent IA VIS product in the required WARP system Projection in auto update mode and cycle through 3 updates.	Displayed satellite product is updated at the satellite reception rate.	Table 30-1
7	Produce hard copy of the product reception log.	Hard copy of log is created.	3.2.1.1.4.1.1.1 3.2.1.1.4.1.2(c)

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Lightning Products Functional Capabilities Test
Test # 3

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 3

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Request for the display of the national lightning product in the WARP system projection.	The national lightning product is displayed for an area of coverage that is the same as the combined areas of coverage of all of the CONUS ACF WARPs. The age of the lightning strokes are discernible. The polarity of the lighting strokes are discernible. The product is displayed in the correct projection for the requested ARTCC/ACF. The full extent of the product is displayed.	3.2.1.1.1.1.3 3.2.1.1.1.1.3.1 3.2.1.1.2.1.3.2.1 3.2.1.1.2.1.3.2.3(a) 3.2.1.1.2.1.3.2.3(b) 3.2.1.1.2.1.3.2.3(c) 3.2.1.1.2.1.3.2.3(d) 3.2.1.1.2.1.3.2.3(g) 3.2.1.1.2.1.3.2.4
2	Request display of the most recent Lightning product in the required WARP system Projection in auto update mode and cycle through 3 updates.	Displayed lightning product is updated at the data reception rate.	Table 30-1
3	Produce hard copy of the product reception log.	Hard copy of log is created.	3.2.1.1.4.1.1.1 3.2.1.1.4.1.2(c)

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlayed on a background map.

WARP
Received Alphanumeric Products Functional Capabilities Test
Test # 4

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 4

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Request display of the current surface observation product (Hourly Surface) from a location given by the TET in auto update mode on CRT #1.	The requested alphanumeric product is displayed along with special observations, if applicable. If a special observation is received from the selected station, it is displayed with the current observation on the display. When a new current hour observation is received by the system, it replaces the previous hour observation.	3.2.1.1.1.1.4 3.2.1.1.1.1.4.1 3.2.1.1.2.1.2.1 3.2.1.1.2.1.2.2 3.2.1.1.2.1.2.3(a) Table 30-1, Appendix C
2	Request display of alphanumeric products identified in the TET supplied list (a subset-Appendix A, Table A-2 of the WARP System Specification (SS)) on CRT #2.	The requested alphanumeric products are acquired and displayed. They contain the same data, date/time, and native format as the corresponding alphanumeric products received from other government sources. Where applicable, all amended, delayed and corrected messages are also included with the original message. For surface observation products, all special observations since the last current observation are acquired and displayed.	3.2.1.1.1.1.4 3.2.1.1.1.1.4.1 3.2.1.1.2.1.2.1 3.2.1.1.2.1.2.2 3.2.1.1.2.1.2.3(a)
3	Produce hard copy of the product reception log.	Hard copy of log is created.	3.2.1.1.4.1.1.1 3.2.1.1.4.1.2(c)

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
NWS Graphic Products Functional Capabilities Test

Test # 5

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlayed on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 5

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Request display of each NWS graphic product identified in the TET supplied list (a subset-Appendix A, Table A-7 of the WARP SS)	The displayed NWS graphic products are the most recent available and of the same content, resolution, area of coverage as the corresponding NWS graphic products obtained by the TET.	3.2.1.1.1.1.6 3.2.1.1.2.1.3.1
2	Produce hard copy of the product reception log.	Hard copy of log is created.	3.2.1.1.4.1.1.1 3.2.1.1.4.1.2

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlayed on a background map.

WARP
Watch/Warning/Advisory Product Functional Capabilities Test
Test # 6

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 6

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	<p>[W/W/A products]</p> <p>Request for the graphical display of all current NWS watch, warning, and advisory areas that are currently valid for a user selected geographic area</p>	<p>The graphic depiction is presented in the WARP system projection.</p> <p>The full extent of the selected region is correctly displayed.</p> <p>Each W/W/A area is clearly identified by lines and are labeled with a name, a unique identifier, valid date and time period.</p> <p>Overlapping regions are clearly delineated.</p>	<p>3.2.1.1.2.1.3.3</p> <p>3.2.1.1.2.1.3.3.1</p> <p>3.2.1.1.2.1.3.3.2(a,c,d,f)</p>
2	<p>Request for display of all current NWS alphanumeric watch, warning, and advisory products that are currently valid for the same selected geographic area as in step 1.</p>	<p>Each W/W/A alphanumeric product is associated with a graphical depiction as a polygon.</p>	<p>3.2.1.1.2.1.3.3.2(d)</p>

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Plot Products Functional Capabilities Test

Test # 7

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 7

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Request for the display of a surface station model plot (SMP) product. Interactively select the stations to be included in the product by selecting a geographical area identified by the TET. Interactively select plot parameters as chosen by the TET.	The displayed surface SMP product provides the required data types, area of coverage, and content in line with the user selected area location and parameter selections. The product is discernible while using automatic decluttering to prevent plot overlaps. Standard WMO fonts and conventions are used.	3.2.1.1.2.1.3.4(a)(1) 3.2.1.1.2.1.3.4.1 3.2.1.1.2.1.3.4.2 3.2.1.1.2.1.3.4.3(a) 3.2.1.1.2.1.3.4.4(a,b,c,d,f,g)
2	Request for the display of a upper air station model plot (SMP) product. Interactively select the stations to be included in the product by selecting a geographical area identified by the TET. Interactively select plot parameters as chosen by the TET.	The displayed upper air SMP product provides the required data types, area of coverage, and content in line with the user selected area location and parameter selections. The product is discernible while using automatic decluttering to prevent plot overlaps. Standard WMO fonts and conventions are used.	3.2.1.1.2.1.3.4(a)(2) 3.2.1.1.2.1.3.4.1 3.2.1.1.2.1.3.4.2 3.2.1.1.2.1.3.4.3(b) 3.2.1.1.2.1.3.4.4(a,b,c,d,f,g)

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Thermodynamic Products Functional Capabilities Test
Test # 8

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 8

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Request for the display of a skew-T/log-P thermodynamic diagram and the associated sounding analysis parameters for the station identified by TET at OCT.	<p>The skew-T/Log-P thermo diagram and its associated sounding analysis parameters are displayed.</p> <p>Temperature profile is constructed of line segments of a user selected color and style.</p> <p>Dew point temperature profile is constructed of line segments of a user selected color and style.</p> <p>Wind speed and direction plotted as a wind barb font.</p> <p>Geopotential pressure heights plotted to the left of the thermo diagram at the same level of the corresponding pressure level.</p> <p>Complete diagram is displayed without panning or zooming.</p>	<p>3.2.1.1.2.1.3.5 3.2.1.1.2.1.3.5.1 3.2.1.1.2.1.3.5.2 3.2.1.1.2.1.3.5.3 (a,b,c,d,e,f,g,h)</p>
2	Modify parts of either the temperature profile or dew point profile and recalculate the sounding analysis parameters for the sounding of step 1.	<p>The graphical profile of temperature or dew point temperature is modified in accordance with user modifications. The analysis indices are recalculated based upon the modifications.</p>	<p>3.2.1.1.2.1.3.5 3.2.1.1.2.1.3.5.1 3.2.1.1.2.1.3.5.2 3.2.1.1.2.1.3.5.3 (a,b,c,d,e,f,g,h)</p>
3	Request for the display of a skew-T/log-P thermodynamic diagram and the associated sounding analysis parameters for a model and model grid point identified by the TET at OCT.	<p>The skew-T/Log-P thermo diagram and its associated sounding analysis parameters are displayed.</p> <p>Temperature profile is constructed of line segments of a user selected color and style.</p> <p>Dew point temperature profile is constructed of line segments of a user selected color and style.</p> <p>Wind speed and direction plotted as a wind barb font.</p> <p>Geopotential pressure heights plotted to the left of the thermo diagram at the same level of the corresponding pressure level.</p>	<p>3.2.1.1.2.1.3.5 3.2.1.1.2.1.3.5.1 3.2.1.1.2.1.3.5.2 3.2.1.1.2.1.3.5.3 (a,b,c,d,e,f,g,h)</p>

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 8

		Complete diagram is displayed without panning or zooming.	
--	--	--	--

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Contour Analysis Products Functional Capabilities Test
Test # 9

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 9

Step #	Operator Action *	Expected Results	Specification Paragraph #
Unevenly spaced data			
1	Request for display of the latest version of several surface contour analysis products with system default contour intervals. If the parameter selected is available as a plot product, overlay the plot product onto the analysis product. The TET will identify at the OCT the parameter and the coverage area selection for each product to be displayed.	<p>For each horizontal objective analysis (HOA) generated:</p> <p>The contours are clearly labeled.</p> <p>Relative maxima and minima are displayed.</p> <p>Displayed in the WARP system projection.</p> <p>Full area extent of selected area is displayed.</p> <p>The plot product should agree with the analysis.</p>	<p>3.2.1.1.2.1.3.7 3.2.1.1.2.1.3.7.1(a)(1) 3.2.1.1.2.1.3.7.2 3.2.1.1.2.1.3.7.3 3.2.1.1.2.1.3.7.5(a,b,c,d,e)</p>
2	Request for display of the latest version of several upper air contour analysis products with system default contour intervals. If the parameter selected is available as a plot product, overlay the plot product onto the analysis product. The TET will identify at the OCT the parameter, the upper air pressure level, and the coverage area selection for each product to be displayed.	<p>For each HOA generated:</p> <p>The contours are clearly labeled.</p> <p>Relative maxima and minima are displayed.</p> <p>Displayed in the WARP system projection.</p> <p>Full area extent of selected area is displayed.</p> <p>The plot product should agree with the analysis.</p>	<p>3.2.1.1.2.1.3.7 3.2.1.1.2.1.3.7.1(a)(2) 3.2.1.1.2.1.3.7.2 3.2.1.1.2.1.3.7.3 3.2.1.1.2.1.3.7.5(a,b,c,d,e)</p>
Evenly spaced data			
3	Request for display various contour analysis products of gridded model data with system default contour intervals. If the parameter selected is available as a plot product, overlay the plot product onto the analysis product. The TET will identify at the OCT the model, the parameter, the pressure level, the valid time, and the coverage area selection for each product to be displayed.	<p>For each HOA generated:</p> <p>The contours are clearly labeled.</p> <p>Relative maxima and minima are displayed.</p> <p>Displayed in the WARP system projection.</p> <p>Full area extent of selected area is displayed.</p> <p>The plot product should agree with the analysis.</p>	<p>3.2.1.1.1.1.5 3.2.1.1.1.1.5.1 3.2.1.1.2.1.3.7 3.2.1.1.2.1.3.7.1(b)(1,2) 3.2.1.1.2.1.3.7.2 3.2.1.1.2.1.3.7.3 3.2.1.1.2.1.3.7.4 3.2.1.1.2.1.3.7.5 (a,b,c,d,e)</p>

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Streamline Analysis Products Functional Capabilities Test

Test # 10

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 10

Step #	Operator Action *	Expected Results	Specification Paragraph #
Unevenly spaced data			
1	Request for display of the latest version of a surface streamline analysis. The TET will identify at the OCT the coverage area selection for the analysis.	<p>The streamline analysis is:</p> <p>Displayed in the WARP system projection.</p> <p>Provides full area extent of selected area.</p> <p>Direction of wind flow is depicted by arrowheads drawn along each streamline and pointing downstream</p>	<p>3.2.1.1.2.1.3.8 3.2.1.1.2.1.3.8.1 3.2.1.1.2.1.3.8.2 3.2.1.1.2.1.3.8.4(a,b,c,d,e)</p>
2	Overlay a station model plot of surface wind speed and direction (windbarbs) onto the analysis.	The analysis should agree with information provided by the model plot.	3.2.1.1.2.1.3.8
3	Request for display of several of the latest versions of upper air streamline analyses. The TET will identify at the OCT the coverage area selection, and pressure level for each analysis requested.	<p>Each streamline analysis is:</p> <p>Displayed in the WARP system projection.</p> <p>Provides full area extent of selected area.</p> <p>Direction of wind flow is depicted by arrowheads drawn along each streamline and pointing downstream</p>	<p>3.2.1.1.2.1.3.8 3.2.1.1.2.1.3.8.1 3.2.1.1.2.1.3.8.2 3.2.1.1.2.1.3.8.4(a,b,c,d,e)</p>
4	Overlay a station model plot of wind speed and direction (windbarbs) for the same parameter and pressure level as in the previous step onto the analysis.	The analysis should agree with information provided by the model plot.	3.2.1.1.2.1.3.8
Evenly spaced data			
5	Request for display of several of the latest versions of gridded data streamline analyses. The TET will identify at the OCT the model, the coverage area selection, the pressure level, and valid time for each analysis requested.	<p>Each streamline analysis is:</p> <p>Displayed in the WARP system projection.</p> <p>Provides full area extent of selected area.</p> <p>Direction of wind flow is depicted by arrowheads drawn along each streamline and pointing downstream</p>	<p>3.2.1.1.1.1.5 3.2.1.1.1.1.5.1 3.2.1.1.2.1.3.8 3.2.1.1.2.1.3.8.1 3.2.1.1.2.1.3.8.2 3.2.1.1.2.1.3.8.3 3.2.1.1.2.1.3.8.4(a,b,c,d,e)</p>

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 10

6	Overlay a station model plot of wind speed and direction (windbarbs) for the same parameter and pressure level as in the previous step onto the analysis.	Each analysis should agree with information provided by the model plot.	3.2.1.1.2.1.3.8
---	---	---	-----------------

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Vertical Cross-section Products Functional Capabilities Test
Test # 11

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 11

Step #	Operator Action *	Expected Results	Specification Paragraph #
Unevenly spaced data			
1	Request for display the latest version of several vertical cross-section analyses. The TET will identify at the OCT the analysis baseline and the data parameter for each analysis requested.	<p>Each vertical cross-section analysis product is:</p> <p>Provides full area extent along user selected baseline.</p> <p>The contours are clearly labeled and are presented as smooth, curved lines.</p> <p>Relative positions of selected stations or lat/lon points are shown along the baseline.</p>	<p>3.2.1.1.2.1.3.9 3.2.1.1.2.1.3.9.2 3.2.1.1.2.1.3.9.3 3.2.1.1.2.1.3.9.4(a,b,c,d,e)</p>
Evenly spaced data			
2	Request for display several vertical cross-section analyses of gridded model data. The TET will identify at the OCT the model, the analysis baseline, the valid time, and the data parameter for each analysis requested.	<p>Each vertical cross-section analysis product is:</p> <p>Provides full area extent along user selected baseline.</p> <p>The contours are clearly labeled and are presented as smooth, curved lines.</p> <p>Relative positions of selected stations or lat/lon points are shown along the baseline.</p>	<p>3.2.1.1.1.1.5 3.2.1.1.1.1.5.1 3.2.1.1.2.1.3.9 3.2.1.1.2.1.3.9.1 3.2.1.1.2.1.3.9.3 3.2.1.1.2.1.3.9.4 (a,b,c,d,e)</p>

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlayed on a background map.

WARP
Alarm/Alert Functional Capabilities Test

Test # 12

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 12

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Set product alarm/alert criteria for arrival products using the products and station identification provided by TET at OCT.	Alarm/alerts for selected products are activated.	3.2.1.1.3.1.1 3.2.1.1.3.3.1(a,b)
2	Upon activation of alarm/alert upon product arrival, display list of alarms/alerts awaiting acknowledgment.	upon product arrival, an alarm/alert summary list is created. This list is displayed when requested and contains all required information.	3.2.1.1.3.3
3	Acknowledge awaiting alarms.	Alert indicators are in effect until all alarms are acknowledged.	3.2.1.1.3.3.1(e)
4	Specify weather alarm criteria for surface observation data using the thresholds, station Id and time interval identified by TET at OCT.	Alarm/alerts for surface observation data are activated.	3.2.1.1.3.1.2 3.2.1.1.3.3.1(a,b)
5	Upon activation of alarm/alert upon product arrival, display list of alarms/alerts awaiting acknowledgment.	Upon product arrival, an alarm/alert summary list is created. This list is displayed when requested and contains all required information.	3.2.1.1.3.3
6	Acknowledge awaiting alarms.	Alert indicators are in effect until all alarms are acknowledged.	3.2.1.1.3.3.1(e)

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Monitoring and Control Functional Capabilities Test

Test # 13

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 13

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Power on the offeror's system	The proposed system begins operating, routinely receiving meteorological products from the offeror's data sources, and is ready for user interaction	3.2.1.1.5.2.1 3.2.1.1.5.2.1.1
2	Request a system restart	The proposed system restarts operating, routinely receiving meteorological products from the offeror's data sources, and is ready for user interaction	3.2.1.1.5.2.1 3.2.1.1.5.2.1.1
3	With the system operating, cause a loss of the data from a TET selected data source	An audible alarm occurs and an alarm message is displayed on the workstation indicating a loss of data from the selected data source.	3.2.1.1.3.1.3 3.2.1.1.3.3 3.2.1.1.3.3.1(e)
4	Assign a new user password and sign onto the system with the new password	The new user password is accepted and sign on is authorized	3.2.1.1.5.2.3(a,b,f)
5	Sign on the system with an invalid password	Sign on is denied and unauthorized attempt is logged	3.2.1.1.5.2.3(a,e)
6	Sign on the system with an authorized user password	The user is signed on to the system	3.2.1.1.5.2.3(a)
7	Display and print systems operations log	The systems operation log is displayed and printed and indicates loss of data from selected data source and unauthorized attempts to log on	3.2.1.1.2.1.1.4, 3.2.1.1.5.2.3(e)
8	Generate a text message and write to a new file on disk	Text message is written to disk	3.2.1.1.5.2.4(a)
9	Read text file created in step 8 for display at workstation	Text file is displayed and is the same as generated in step 8	3.2.1.1.5.2.4(b)
10	Create a new directory and move file created in step 8 into that directory	Proposed system creates a new disk directory and moves the file created in step 8 into it	3.2.1.1.5.2.4(g)
11	Rename step 8 file	Step 8 file is renamed in the appropriate directory	3.2.1.1.5.2.4(g)
12	Delete file renamed in step 11	Step 11 file is removed from the directory	3.2.1.1.5.2.4
13	Request load and display of archived step 8 file	Archived step 8 file is loaded and displayed on the workstation	3.2.1.1.5.2.4(b)
14	Request to dismount archive storage device	Archive storage device is dismounted	3.2.1.1.5.2.4(e)

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 13

15	Request to mount new archive storage device	New archive storage device is mounted and activated	3.2.1.1.5.2.4(e)
16	Request to terminate system operations	Offeror's system is shutdown and system archives and retains all appropriate files prior to shutdown	3.2.1.1.5.2.2 3.2.1.1.5.2.2.1

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Computer-Human Interface Functional Capabilities Test
Test # 14

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlayed on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 14

Step #	Operator Action *	Expected Results	Specification Paragraph #
Workstation Capabilities			
1	During the conduct of this test, verify that the user interface requirements of Section 3.3.7.2, user display control, user input, and user feedback are met.	User interface requirements are met.	3.3.7.2
2	Request display of the most recent national mosaic product with automatic update on CRT #1.	The most recent national mosaic product is displayed on CRT #1 in auto update mode.	3.2.1.1.2.2.1 3.2.1.1.2.2.2 3.2.1.1.2.2.2.1 3.2.1.1.2.2.16.1.3.1
3	Request display of the most recent NA satellite VIS product with automatic update on CRT #2.	The most recent NA satellite VIS product is displayed on CRT #2 in auto update mode	3.2.1.1.2.2.1 3.2.1.1.2.2.2
4	Request display of the most recent lightning product with automatic update on CRT #3.	The most recent lightning product is displayed on CRT #3 in auto update mode.	3.2.1.1.2.2.1 3.2.1.1.2.2.2
5	Note when national mosaic product on CRT #1 is updated.	When an update to the national mosaic product is available (every 5 minutes) the display on CRT #1 is updated.	3.2.1.1.2.2.2
6	Note when NA satellite VIS product on CRT #2 is updated.	When an update to the NA satellite VIS product is available (every 15 minutes) the display on CRT #2 is updated.	3.2.1.1.2.2.2
7	Note when lightning product on CRT #3 is updated.	When an update to the lightning product is available (within 1 minute of strike detection) the display on CRT #1 is updated.	3.2.1.1.2.2.2
8	Clear the display on CRT #2 and request the NA satellite VIS product on CRT #2 be displayed in full screen format.	Most recent NA satellite VIS product is displayed in full screen format on CRT #2	3.2.1.1.2.2.3.1
9	On CRT #1, clear the display and request a four quadrant display of the latest national mosaic, the latest NA satellite VIS product, the latest IA satellite VIS product, and the latest lightning product.	The latest national mosaic product, the latest NA satellite VIS product, the latest IA satellite VIS product, and the latest lightning product are displayed on CRT #1 in 4 separate and equal display quadrants.	3.2.1.1.2.2.3.1
10	Clear the display on CRT #3 and request display of the latest national mosaic product.	The latest national mosaic product is displayed and all intensity levels present are displayed.	3.2.1.1.2.1.1.1.3

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 14

11	On CRT #3, change intensity threshold to display only those intensity levels above a TET supplied dBZ level.	Only those intensity levels that are present and are above the TET supplied level are displayed.	3.2.1.1.2.1.1.1.3
12	On CRT #2, request display of background maps on the NA satellite product that depict geopolitical boundaries with lat/lon grids in the WARP system projection.	The requested background maps and lat/lon grids are displayed with the NA satellite product in the WARP system projection.	3.2.1.1.2.2.4 3.2.1.1.2.2.4.1
13	On CRT #1 request display of a TET supplied list of overlay products(2 image and 4 graphic products-in separate colors) with geopolitical background maps.	The list of TET products are overlaid on CRT #1 with unique colors for each graphic overlay and discernible product legends.	3.2.1.1.2.2.5 3.2.1.1.2.2.5.1 3.2.1.1.2.2.5.3
14	On CRT #1 remove TET specified overlay product from the display.	Requested product is removed from CRT #1 without affecting the other 5 products.	3.2.1.1.2.2.5.2
15	On CRT #1 zoom displayed overlay products from x1 to x16 using 4 zoom steps.	Display on CRT #1 is zoomed via 4 zoom steps from x1 to x16. Coordinate transform is used for vector graphic products and pixel replication is used on image products with legends viewable at all zoom levels.	3.2.1.1.2.2.6 3.2.1.1.2.2.6.1 3.2.1.1.2.2.6.2 3.2.1.1.2.2.6.3
16	With the overlay product on CRT #1 zoomed to x16, pan zoomed product to non-zoomed product boundaries.	The viewing window on CRT #1 moves through the total area of coverage of the x1 product seen in step #13.	3.2.1.1.2.2.7
17	On CRT #2 clear the display and animate a TET specified list of 24 products at 6 frames/sec.	The TET specified animation sequence is selected and animated at 6 frames/sec.	3.2.1.1.2.2.8
18	Reverse the direction of animation.	Animation sequence on CRT #2 sequences in reverse order.	3.2.1.1.2.2.8
19	Stop the animation sequence on CRT #2.	Sequence on CRT #2 is halted	3.2.1.1.2.2.8
20	Restart the animation of sequence on CRT #2.	Animation sequence on CRT #2 restarts.	3.2.1.1.2.2.8
21	Change animation speed to TET specified value(s) for animation on CRT #2.	Animation sequence on CRT #2 sequences at the TET specified speed value(s).	3.2.1.1.2.2.8
22	Run animation sequence on CRT #2 in auto update mode.	Animation sequence is updated with new product when the new product is available.	3.2.1.1.2.2.8
23	Remove a TET selected product	The selected product is removed	3.2.1.1.2.2.8

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 14

	from the animation sequence and start the animation sequence.	from the animation sequence and is not displayed	
24	Add a TET selected product to the animation sequence and start the animation sequence.	The selected product is added to the animation sequence and is displayed	3.2.1.1.2.2.8
25	Select a TET specified list of 24 products for sequencing.	The TET list of 24 products are selected	3.2.1.1.2.2.10
26	Sequence the selected products at a TET specified time(s) between displays.	The selected products are displayed with a TET selected time(s) between displays	3.2.1.1.2.2.10
27	Stop and restart the sequence.	The sequence is stopped and restarted	3.2.1.1.2.2.10
28	Remove a TET selected product from the sequence and start the sequence.	The selected product is removed from the sequence and is not displayed	3.2.1.1.2.2.10
29	Add a TET selected product to the sequence and start the sequence.	The selected product is added to the sequence and is displayed	3.2.1.1.2.2.10
30	Clear the display on CRT #3 and request a TET selected NA IR satellite product be displayed with geopolitical background map.	The selected satellite product is displayed on CRT #3	
31	Assign TET supplied colors to TET selected radiance temperature values.	Colors are selected from a set of 256 colors and applied to the displayed IR radiance temperatures as selected.	3.2.1.1.2.1.1.2.2 3.2.1.1.2.2.11
32	Assign a TET selected color to the geopolitical background map displayed with the satellite product.	The color of the background map is changed to the TET selected color.	3.2.1.1.2.2.11
33	Clear CRT #2 and request display of a TET selected alphanumeric product from table A-2 of the WARP spec.	The selected product is displayed on CRT #2	
34	Request to print the alpha product on CRT #2 on the alphanumeric printer.	The alpha product is printed as requested.	3.2.1.1.2.2.14.1
35	Request to print the satellite product on CRT #3.	The satellite product on CRT #3 is printed on the color hard copy device.	3.2.1.1.2.2.14.2
Briefing Terminal Display Capabilities			
1	Modify the colors of various display elements of the briefing	The color of the briefing terminal display are changed.	3.2.1.1.2.3.12

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 14

	terminal display.		
2	Request display of a directory of all retained products.	A directory list of all products retained at the workstation is displayed	3.2.1.1.2.3.4
3	For the active display of step 2, scroll through the list, one line at a time. Then view the display by paging forward and backward.	Screen and window control capabilities are demonstrated.	3.2.1.1.2.3.3.2
4	Request display of the most recent national mosaic product on the briefing terminal in a full screen mode -	The latest national mosaic product is displayed using the maximum display area available.	3.2.1.1.2.3.1 3.2.1.1.2.3.3.1
5	Request display of the most recent TET selected satellite product on the briefing terminal	The latest version of the TET selected product is displayed.	3.2.1.1.2.3.1
6	Request display of the most recent lightning product on the briefing terminal	The latest version of the lightning product is displayed.	3.2.1.1.2.3.1
7	Request display of the most recent TET selected alphanumeric product(s) on the briefing terminal	The latest version of the TET selected product(s) is displayed.	3.2.1.1.2.3.1
8	Request display of the most recent TET selected NMC graphic and plot product(s) on the briefing terminal	The latest version of the TET selected product(s) is displayed.	3.2.1.1.2.3.1
9	Request display of a TET selected manually generated product on the briefing terminal	The TET selected manually generated product is displayed.	3.2.1.1.2.3.1
10	Request display of the most recent national mosaic product on the briefing terminal in the auto update mode	The latest national mosaic product is displayed in auto update mode.	3.2.1.1.2.3.1 3.2.1.1.2.3.2
11	Note when national mosaic product on the briefing terminal is updated.	When an update to the national mosaic product is available (every 5 minutes) the product displayed on the briefing terminal is updated.	3.2.1.1.2.3.2
12	Request display of background maps on the national mosaic product displayed in step 8 that depict geopolitical boundaries with lat/lon grids in the WARP system projection	The requested background maps and lat/lon grids are displayed with the national mosaic product in the WARP system projection with a discernible product legend.	3.2.1.1.2.3.5 3.2.1.1.2.3.6 3.2.1.1.2.3.7
13	Zoom the displayed national	Display displayed product is	3.2.1.1.2.3.8

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 14

	mosaic product from x1 to x4 using 2 zoom steps.	zoomed via 2 zoom steps from x1 to x4. Coordinate transform is used for the background maps and pixel replication is used on the image product with the product legend viewable at all zoom levels.	
14	Pan the national mosaic product to the boundaries of the non-zoomed product	The viewing window on the briefing terminal moves through the total area of coverage of the x1 product seen in step #9.	3.2.1.1.2.3.9
15	Select a TET specified list of 24 products for sequencing	The TET list of 24 products are selected	3.2.1.1.2.3.11
16	Sequence the selected products at a TET specified time(s) between displays	The selected products are displayed with a TET selected time(s) between displays	3.2.1.1.2.3.11
17	Stop and restart the sequence	The sequence is stopped and restarted	3.2.1.1.2.3.11
18	Remove a TET selected product from the sequence and start the sequence	The selected product is removed from the sequence and is not displayed	3.2.1.1.2.3.11
19	Add a TET selected product to the sequence and start the sequence	The selected product is added to the sequence and is displayed	3.2.1.1.2.3.11
20	Request display of a TET selected product on the briefing terminal and print the displayed product on the color hard copy device	The selected product is displayed and is printed on the color hard copy device.	3.2.1.1.2.3.13
Meteorologist Interactions			
1	On CRT #1 create a General Information Message (GIM) product with TET supplied message and store the product with a unique ID	GIM is created on CRT #1 and stored with a unique ID.	3.2.1.1.2.2.15.1.1 3.2.1.1.2.2.15.1.4 3.2.1.1.2.1.2.4
2	Request display of a TET selected satellite product on CRT #2 with geopolitical map backgrounds without specifying product time or version	The latest version of the requested TET product is displayed on CRT #2 with geopolitical background maps.	3.2.1.1.2.2.16
3	Add a TET supplied Hazard Weather Outline product (HZW) and legend to the product displayed on CRT #2	The satellite product on CRT #2 is annotated with a new legend and a TET supplied HZW.	3.2.1.1.2.2.15.1.1 3.2.1.1.2.2.15.1.2 3.2.1.1.2.2.15.1.3 3.2.1.1.2.1.3.10 3.2.1.1.2.1.3.10.1(a,b,c)

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 14

4	Store modified product on CRT #2 with a unique product ID	Product on CRT #2 is stored with a unique product ID.	3.2.1.1.2.2.16
5	Clear the product on CRT #2 and request display of the product requested in step 2	The original TET selected satellite product is displayed on CRT #2 and has not been modified.	3.2.1.1.2.2.15.1.4
6	On CRT #3 request display of the modified satellite stored in step 4	Requested product is displayed on CRT #3 and is identical to product stored in step 4.	3.2.1.1.2.2.15.1.4
7	Clear the product on CRT #1 and request display of a TET selected national mosaic product.	The TET selected product is displayed on CRT #1.	3.2.1.1.2.2.16 3.2.1.1.2.1.16.1.3.1
8	Clear the product on CRT #1 and request display of a TET selected individual radar product.	The TET selected product is displayed on CRT #1.	3.2.1.1.2.2.16 3.2.1.1.2.1.16.1.1
9	Clear the product on CRT #2 and request display of a TET selected alphanumeric product by its product ID with scrolling of alpha products on.	The product requested is displayed on CRT #2.	3.2.1.1.2.2.16.2.1 3.2.1.1.2.2.16.2.3
10	On CRT 2 request display of a TET supplied product for a TET supplied list of stations.	The requested alpha product for the stations supplied are displayed on CRT #2 along with the product requested in step 8.	3.2.1.1.2.2.16.2.1 3.2.1.1.2.2.16.2.3
11	On CRT #2 request display of a TET selected alpha product for a TET specified time.	The TET requested product for the TET specified time period is displayed on CRT #2.	3.2.1.1.2.2.16.2.1 3.2.1.1.2.2.16.2.3
12	On CRT #2, scroll the screen up and down to display all of the alpha products requested in steps 8,9,10.	All of the products requested in steps 8,9,10 are accumulated and displayed via scrolling on CRT #2.	3.2.1.1.2.2.3.2
13	Clear the screen on CRT #2.	The accumulated products from steps 8,9,10 are removed from CRT #2.	3.2.1.1.2.2.3.2
14	On CRT #2 request display of a TET selected alpha product by TET specified version # with non-scroll selected.	The selected alpha product is displayed on CRT #2.	3.2.1.1.2.2.16.2.1 3.2.1.1.2.2.16.2.3
15	On CRT #2 request display of a TET selected alpha product by TET selected product type.	The selected product type is displayed after the product displayed in step 13 is cleared on CRT #2.	3.2.1.1.2.2.16.2.1 3.2.1.1.2.2.16.2.3
16	Generate an alphanumeric collective as specified by the	The collective alpha request is generated and assigned an ID for	3.2.1.1.2.2.16.2.2

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 14

	TET.	use in requesting alpha products for display.	
17	On CRT #2 request display of the alpha products defined by the collective generated in step 15.	The requested collective of alpha products are displayed on CRT #2 and the alpha product displayed on CRT #2 in step 14 is cleared.	3.2.1.1.2.2.16.2.1
18	On CRT #1 request display of a TET selected list of graphic products.	The selected graphic products are displayed on CRT #2 when requested.	3.2.1.1.2.2.16.3.1
19	On CRT #2 clear the display and request display of a lightning product without any parameters specified.	The latest version of the national product is displayed on CRT #2 in auto update mode with default polarity symbols in the WARP system projection with the default age interval of strikes.	3.2.1.1.2.2.16
20	On CRT #1 clear the display and request display of a horizontal analysis of a TET specified parameter without providing any contour characteristics.	The HOA of the TET specified parameter is displayed on CRT #1 using the default contour characteristics for that parameter as specified in appendix D.	3.2.1.1.2.2.16.3.1

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Retention Functional Capabilities Test
Test # 15

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlayed on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 15

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Request display and print of a directory of all radar products	A list of all retained radar products is displayed and printed on alphanumeric laser printer	3.2.1.1.4.2 3.2.1.1.2.2.16.4
2	Request display of a TET selected radar product from the step 1 list	Request display of a TET selected radar product from the step 1 list	3.2.1.1.4.2
3	Request display and print of a directory of all satellite products	A list of all retained satellite products is displayed and printed	3.2.1.1.4.2 3.2.1.1.2.2.16.4
4	Request display of a TET selected Satellite product from the step 3 list	The requested satellite product is displayed	3.2.1.1.4.2
5	Request display and print of a directory of all lightning products	A list of all retained lightning products is displayed and printed	3.2.1.1.4.2 3.2.1.1.2.2.16.4
6	Request display of a TET selected lightning product from the step 5 list	The requested lightning product is displayed	3.2.1.1.4.2
7	Request display and print of a directory of all alphanumeric products	A list of all retained alphanumeric products is displayed and printed	3.2.1.1.4.2 3.2.1.1.2.2.16.4
8	Request display of a TET selected alphanumeric product from the step 7 list	The requested alphanumeric product is displayed	3.2.1.1.4.2
9	Request display and print of a directory of all NWS Graphic/ Gridded products	A list of all retained NWS Graphic/Gridded products is displayed and printed on alphanumeric laser printer	3.2.1.1.4.2 3.2.1.1.2.2.16.4
10	Request display of a TET selected NWS Graphic/ Gridded product(s) from the step 9 list	The requested NWS Graphic/ Gridded product(s) is displayed	3.2.1.1.4.2
11	Request display and print of a directory of all meteorologist generated products	A list of all retained meteorologist generated products is displayed and printed on alphanumeric laser printer	3.2.1.1.4.2 3.2.1.1.2.2.16.4
12	Request display of a TET selected meteorologist generated product from the step 11 list	The requested meteorologist generated product is displayed	3.2.1.1.4.2

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Archiving Functional Capabilities Test

Test # 16

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlayed on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 16

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Request display of a TET selected product	The TET selected product is displayed on the workstation	
2	Annotate the step 1 product with 'This product will be archived...'. Save and archive the annotated product with a unique name	The step 1 product is annotated, and saved with a unique product name and archived as a meteorologist annotated product	3.2.1.1.4.3.1 3.2.1.1.4.3.1.2
3	Generate a hazardous weather outline on a CONUS MAP. Save and archive the product with a unique name	The hazardous weather outline is generated on the workstation, saved with a unique product name and archived as a meteorologist generated product	3.2.1.1.4.3.1.2
4	Delete the products generated /annotated in steps 2&3	The requested products are deleted and no longer exist on the WARP on line storage	
5	Retrieve the deleted products from the off-line archive device and print hard copies of the deleted products	The deleted products are retrieved, printed and are identical to the hard copy of the products from steps 2&3	3.2.1.1.4.3.2 3.2.1.1.4.3.3
6	Request display and print of a directory of all files on the archive media	A list of all archived products/logs is displayed and printed	3.2.1.1.4.3.1.1 3.2.1.1.4.3.2
7	Retrieve and print TET selected archived products/logs	The requested archive files are retrieved and printed	3.2.1.1.4.3.2
8	Manually archive a TET selected product and make a color hard copy of the selected product	The selected product is archived and a color hard copy is made of the product	3.2.1.1.4.3.2
9	Deleted the step 8 selected product from the online mass storage	The selected product is deleted from the offeror's system	
10	Retrieve, display and print a color hard copy of the archived product from step 8	The archived product is displayed and printed and is identical to the hard copy generated in step 8	3.2.1.1.4.3.2
11	Inspect the archive storage device and associated documentation. Determine from documentation if device is capable of holding 15 days worth of data.	The archive device is visually inspected.	3.2.1.1.4.3 3.2.1.1.4.3.3

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Performance Processing Functional Capabilities Test
Test # 17

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlayed on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
GENERIC TEST PROCEDURES
TEST # 17

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	On CRT #1 animate 24 ARTCC/ACF IA products at 6 frames per second (FPS) in automatic update mode	The ARTCC/ACF IA animation sequence is initiated and continues at 6 FPS	
2	On all 15 briefing terminals (BTs), set up a TET selected products sequence at a 120 second sequence rate in automatic update mode	All 15 BTs have the TET product sequence running at a 120 second update rate	
3	On CRT #2 animate 24 national radar mosaic products at 6 frames/sec in automatic update mode	Radar mosaic animation sequence is initiated and continues at 6 frames/sec.	
For the following steps, perform 50 measurements of the TET selected products for statistical analysis on CRT #3			
4	Generate a surface station model plot of 60 TET selected stations and 7 parameters. Measure the time from input of the request until the SMP is displayed	The SMP is generated and the time from input request to display is measured.	3.2.1.1.2.4
5	Generate an upper air station model plot of 100 TET selected stations and 4 parameters. Measure the time from input of the request until the SMP is displayed	The SMP is generated and the time from input request to display is measured.	3.2.1.1.2.4
6	Display a TET selected national radar product in WARP system projection. Measure the time from input of the request until the radar product is displayed	The TET selected radar product is displayed and the time from input request to display is measured	3.2.1.1.2.4
7	Display a TET selected alpha product. Measure the time from input of the request until the alpha product is displayed	The TET selected alpha product is displayed and the time from input request to display is measured	3.2.1.1.2.4
8	Display a TET selected graphic/gridded product. Measure the time from input of the request until the graphic/gridded product is displayed	The TET selected graphic/gridded product is displayed and the time from input request to display is measured	3.2.1.1.2.4
9	Display a TET selected lightning product. Measure the time from input of the request until the lightning product is displayed	The TET selected lightning product is displayed and the time from input request to display is measured	3.2.1.1.2.4
10	Generate and display an TET	The TET selected thermo	3.2.1.1.2.4

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 17

	selected thermodynamic product. Measure the time from input of the request until the thermodynamic product is displayed	product is displayed and the time from input request to display is measured	
11	Display ARTCC/ACF NA VIS product selected by TET	ARTCC/ACF NA VIS product is displayed and the time from input request to display is measured	3.2.1.1.2.4
12	Generate and display a TET selected vertical cross section product. Measure the time from input of the request until the vertical cross section product is displayed	The TET selected vertical cross section product is displayed and the time from input request to display is measured	3.2.1.1.2.4
13	Generate and display a TET selected horizontal analysis product. Measure the time from input of the request until the horizontal analysis product is displayed	The TET selected horizontal analysis product is displayed and the time from input request to display is measured	3.2.1.1.2.4

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
Adaptive Operation Functional Capabilities Test
Test # 18

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 18

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Request display of a horizontal analysis of surface temperature from a TET specified time without specifying a contour interval. [Test #9]	The contours generated have an interval of 5 degrees	Appendix D
2	Change the default contour interval for temperature from 4 to 2 degrees. [Test #9]	The temperature default contour interval is changed to 2 degrees	Appendix D
3	Request display of a horizontal analysis of surface temperature from a TET specified time without specifying a contour interval. [Test #9]	The contours generated have an interval of 2 degrees	Appendix D

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

WARP
System Characteristics Functional Capabilities Test
Test # 19

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlaid on a background map.

OPERATIONAL CAPABILITY TEST (OCT)
 GENERIC TEST PROCEDURES
 TEST # 19

Step #	Operator Action *	Expected Results	Specification Paragraph #
1	Measure the system and inspect the documentation for the offeror's system to identify the system's physical characteristics. Compare observed physical characteristics with the offeror's description of system contained in the technical proposal.	The offeror's system meets the physical characteristics specified in section 3.2.4 and 3.3.7.3. The proposed system at OCT matches description contained in the technical proposal.	3.2.4.2.1 3.2.4.2.1.1 3.2.4.2.2 3.2.4.2.3 3.2.4.2.4 3.3.7.3

* Make a color hard copy of all products requested for display. Where appropriate, all products shall be overlayed on a background map.